ELECTRONIC SOUND

THE ELECTRONIC MUSIC MAGAZINE

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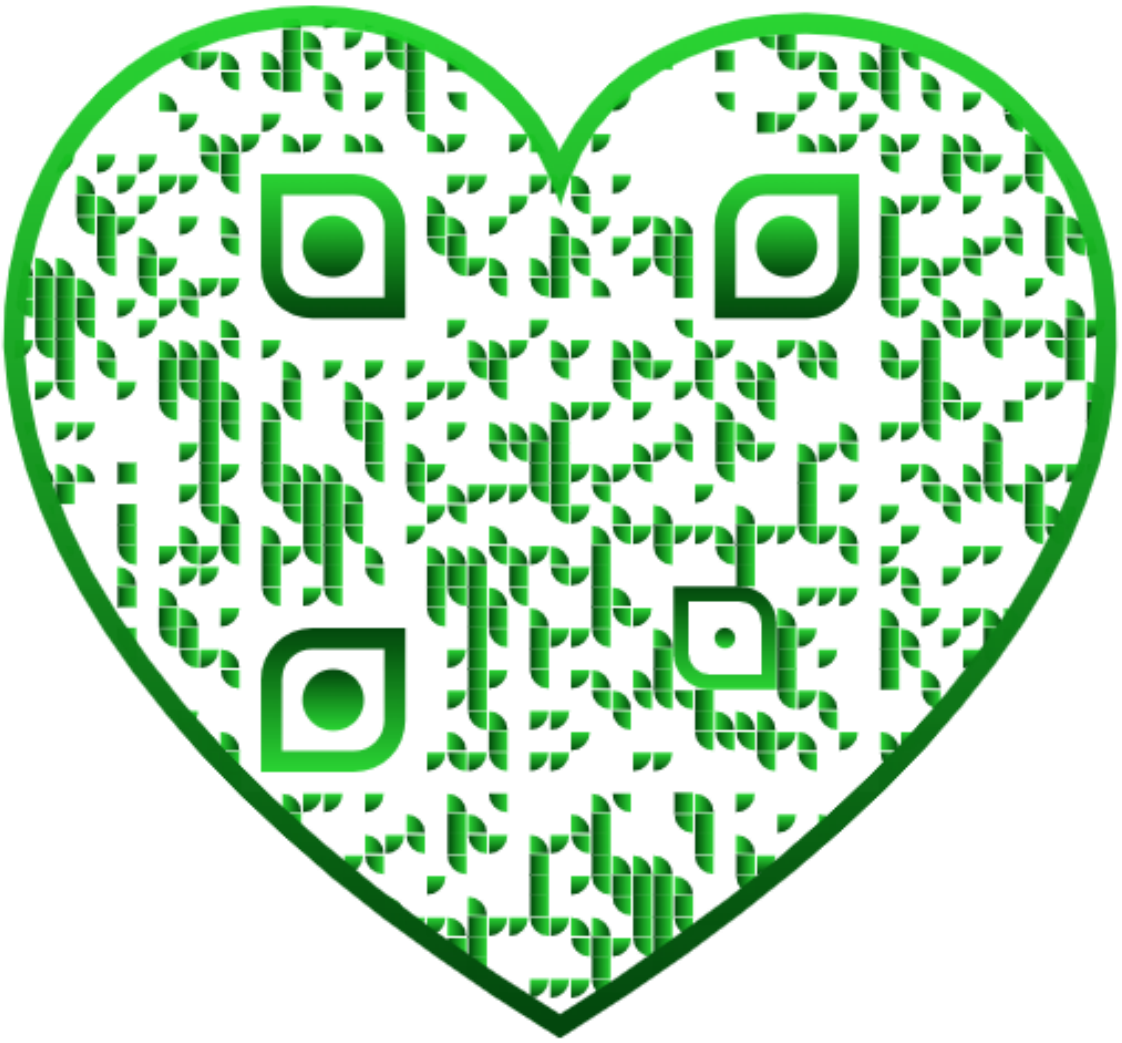
A USER'S GUIDE TO THE FUTURE

JOHN FOXX / THOMAS DOLBY / MARTYN WARE / EMIL SCHULT / JEFF MILLS / ALEKS KROTOSKI / GAZELLE TWIN / CHRIS WATSON / J WILLGOOSE ESQ / ARP



100 WELCOME TO ELECTRONIC SOUND

EDITOR
Push

DEPUTY EDITOR
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ART EDITOR
Mark Hall

FEATURES EDITOR
Velimir Ilic

FRONT EDITOR
Isaak Lewis-Smith

REVIEWS EDITOR
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SUB EDITORS
Gill Mullins
Susie Dawes

Welcome to the 100th issue of Electronic Sound. To start with, here's a confession from your humble editors. When we launched ES in 2013, we were slightly concerned there wouldn't be enough decent electronic music for us to write about. Was there really the quality and depth there to sustain a regular magazine?

Well, here we are, with 10 years and 100 issues on the clock, and the wealth of amazing music that keeps coming our way never fails to delight us. We've seen artists emerge out of nowhere and go on to find international audiences. We've had established names delivering fresh work with as much innovation and urgency as they've always had. And despite the challenges this troubled decade has thrown at us, it's clear that the underground pulses as fiercely as ever. It's been a pleasure and an honour to chart such creative sonic turbulence.

So how to mark ES100? The one theme that unites many of the artists in our world is futurism. While it's true that it has occasionally included asymmetric haircuts and a penchant for dressing up, electronic music is more broadly powered by a forward-looking aesthetic, an interest in science fiction, and a curiosity for science fact. Where is technology going to take us? How might it change our communities? Are we heading for an exciting world of new possibilities or some unstoppable dystopian horror show? These are some of the questions we had in our heads when we started thinking about ES100. And when we put these same questions to the artists featured in this month's magazine and on the fantastic double CD accompanying the issue, we got lots of fascinating and sometimes troubling responses.

Generative artificial intelligence became the latest tech hot potato around the time we began work on the mag in earnest, with ChatGPT and Midjourney released as tools for anyone to play about with. When our art editor Mark Hall suggested we use AI imagery in the issue, it sparked an internal debate about how far we should go, with some members of the team pushing to have all of this month's visuals generated by AI. Although we decided to limit them to around half the magazine, our discussions about what AI might mean for creativity and the workplace in general are still rumbling on – and they probably will for a good while yet.

ES100 feels like a landmark for us and we'd like to thank each and every one of you for the part you've played in the journey. It's your support and loyalty that has brought us to this point. We will be back to our usual editorial content next month, but technology will be resolutely marching on in the meantime, seemingly without needing us much anymore.

Duty now for the future!

Electronically yours,
Push and Mark

EDITORIAL
editorial@electronicsound.co.uk

ADVERTISING
Chris Dawes
chris@electronicsound.co.uk

SUBSCRIPTIONS
electronicsound.co.uk/subscribe
support@electronicsound.co.uk

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electronicsound.co.uk
facebook.com/electronicmagazine
twitter.com/electronicmaguk

CONTRIBUTORS
Jeremy Allen, Joe Banks, Imogen Bebb, Ian Berriman, Scott Blixen, Claire Carroll, Paul Clarke, Joe Clay, Bethan Cole, Stephen Dalton, Bob Fischer, Ben Gilbert, Ian Gittins, Carl Griffin, Robert Harris, Jo Hutton, Martin James, Jo Kendall, Andy Linehan, Neil Mason, Finlay Milligan, Ben Murphy, Kris Needs, Sharon O'Connell, Matt Parker, David Pollock, Chris Roberts, Fat Roland, Will Salmon, Joe Silva, Dave Simpson, Will Simpson, Mat Smith, Anton Spice, William Stokes, David Stubbs, James Thornhill, Anthony Thornton, Neil Thomson, Spenser Tomson, Ben Willmott

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BRIAN ENO

Green Events & Innovations Conference, Royal Lancaster Hotel, London

28 FEBRUARY 2023

WORDS: MAT SMITH

"I always think that what people expect when it comes to climate change is some kind of propaganda. Unfortunately, most art that tries to be socially engaged is very crudely propagandistic. What really changes your mind is not usually that. It's having feelings – suddenly finding you are excited, thrilled or moved by something."

Brian Eno was in fine form during his keynote conversation (titled 'Music As A Social Synchroniser') with Grammy Award-winning pop/jazz prodigy Jacob Collier at the Green Events & Innovations Conference in London recently. The gathering, hosted by A Greener Future, seeks to improve collective action within the music industry in fighting the "climate catastrophe".

The premise of Eno's speech is that music – its social functions, and how it arises from communities, societies and "living ecosystems" – represents the best way of uniting people because of its reliance on human feelings and instincts.

Both men cite how a sense of synchrony can rapidly arise when people converge around a shared emotion. Collier's concerts frequently involve whole-audience impromptu choirs, and Eno has held a singing group at his studio every Tuesday for over 20 years.

In conversation, Eno is avuncular, politically direct and honest – we learn that he farts a lot, hilariously – and he conveys a sense of inspiring optimism. In a measured, non-confrontational way, he suggests there are lots of positive developments in climate change which largely go unreported in the media.

Both he and Collier are supporters of EarthPercent, the charity founded by Eno that encourages those working in the music industry to donate a small percentage of their revenue to climate causes.

The organisation recently launched the Earth As Your Co-Writer initiative, where Planet Earth is given a writing credit on songs, through which climate causes can receive ongoing royalty payments. They're also trying to encourage a major streaming platform to join – which is great, given the much-publicised disparity between what artists make from music, compared with the platforms through which their songs are distributed.

"Climate change is a great leveller because we're all beginners," reflects Eno, drawing a parallel with the first-time singers who join his choir. "When people are working in a group, we think we're combining lots and lots of people's actions. In fact, what we're doing – and this is the reason things can happen very quickly – is multiplying those actions.

"When they're put together, they actually flourish in ways that we didn't expect. And this is my hope for how we can deal with climate change through music and the arts, because we're doing something that's more synergistic than additive."

Typically insightful, erudite and compelling. Now that's a levelling-up we can definitely get onboard with.

AI GENERATED

READER OFFER

Exclusive reader-only limited editions

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C. Visit electronicsound.co.uk/futurism to buy this release on its own for £8.99, but be quick because stocks are strictly limited

VARIOUS ARTISTS ‘FUTURISM’ DOUBLE CD

This month’s Reader Offer is a fabulous collection of tracks by some of our favourite artists. Inspired by visions of “the future”, from life on other planets and cyber worlds to surrealist B-movies and AI excursions – among other things – it really is quite a trip. Turn the page for the full tracklist...

01. MEAT BEAT MANIFESTO 'LIFEFORMS'

"Searching for life forms on our Earth or other planets is an inherently human trait," says Meat Beat Manifesto's Jack Dangers. "One day it will become blatantly obvious that we are not alone in the universe. The equipment used on this recording consists of a Moog modular System 55 running the main sequence and sync clock, which is controlling various components on the ARP 2500 and EMU modular synthesisers. This produces the rhythm elements along with an Elektron Machinedrum and Analog Four. The bass is a Moog Taurus, and the vocal was performed by Mophono [DJ Centipede], then processed through an EMS Vocoder 3000 and dubbed to taste!"

02. WRANGLER 'MACHINES DESIGNED (TO EAT YOU UP)'

"The album, 'A Situation', was lyrically all about our relationship with technology and how we fight it, fear it, fetishise it, flip over and roll with it," says Stephen Mallinder. "But AI has shifted things into a stranger, super-real playground. 'Machines Designed' was a look at that dance between the shiny, benign benefits and creepy, darker exploitation. The swallowing up of the human. Blips and screeches, a sometimes slick but uncontrollable and broken system. The video by Akiko Haruna and Jedd Winterburn nails the whole simulated world the track imagines – cows in VR headsets. Need I say more?"

03. MISS GRIT 'FOLLOW THE CYBORG'

Miss Grit's debut album, 'Follow The Cyborg', pictures Korean-American producer Margaret Sohn with thick cables protruding from their mouth as they stare blankly into the middle distance. The image speaks volumes. Their album explores the life and futuristic aesthetic of a "non-human machine", exemplified by the robotic throbs and pulsing synths of the title cut. "I wanted to place my body in the cyber world, allowing the different variations of my ghost to move about freely," explains Sohn. "I wanted to look unrecognisable and a bit freakish to myself, to avoid my instinctive filtration."

04. JOHN FOXX 'SCIENCE FICTION MOVIES'

"This was a demo for a project with Paul Daley. It didn't fit the direction, so we put it aside, but I think it still has legs. This one was kicked off by seeing a 1950s B-movie, 'Robot Monster' by maverick filmmaker Phil Tucker, when I was seven years old. It's often voted the worst movie of all time, but I think it's a surrealist masterpiece – a collage of stock footage scraps and borrowed Hollywood props. No plot. The Monster is an ape suit with a diver's helmet and stuck-on antennae. I watched it with awe. Some other fragments of the song… an ex-girlfriend who hated sci-fi and asked me not to bring back any more old movies I'd discovered. And there's the image from a Ray Bradbury story, 'The Illustrated Man', which I misread as 'The Illuminated Man' – mistakes can be useful. The song also references that strange feeling you get after an all-nighter in some dark club. You wander out into daylight and normality looks like another very strange world."

05. TRANSHUMAN ART CRITICS 'UPDATE THE FUTURE'

Painter, poet and staunch futurist Emil Schult is probably best-known for designing artwork and writing lyrics for Kraftwerk's defining albums. As one-third of Transhuman Art Critics, he explores "utopian qualities of the future", striving for a balance between nature, science and the arts. "We are moving on a fine line between the past and the future," he says. "With every new thought, technology and humanistic step we progress into a future field. So every action is a future action and every new moment is at the same time a view into the future. We can already redefine tomorrow today and optimise it through our knowledge and reason. Future is not abstract, it is happening now. The reason for our perception of time is so that not everything happens at once. It makes us see, learn and understand how all things in life develop."

06. STONE GIANTS 'METROPOLE'

"One of the more charming things about machines has, up to now, been their limited range to express emotion," says Brazilian producer and DJ Amon Tobin, aka Stone Giants. "It's why, for me, music made electronically expresses such yearning, like listening to a soul trying to find its language through oscillations and noise. Looking ahead to neural networks that can reason and take steps towards self-awareness, I wonder if our values will be shared with this intelligence… our place in the future rather hinges on this. 'Metropole' is quite an old-fashioned vision of this future that considers both possibilities and outcomes."

07. MARIA UZOR 'PEOPLE, REALISE IT'

Formerly one half of Norwich duo Sink Ya Teeth, Maria Uzor is now a solo artist rooted in electro, avant-pop, techno and dub. Of 'People, Realise It', she says: "I wanted to explore the interaction between human beings and artificial intelligence, using AI as a collaborator but also exploring how to retain a human element. The beats and melody were created using machine learning, and the lyrics were AI-generated around themes of self-improvement and time travel, which I then chopped and pitched. I'd love to see a future with more togetherness and community, but I've envisaged a continuation of where we are now, to a conclusion where the focus becomes even more about creating the perfect, superhuman self to present on social media."

08. GLOK 'SOMASIDE'

"The title of 'SomaSide' imagines suicide via Soma, the happy pills used to keep the populace in line in Aldous Huxley's dystopian 1932 novel, 'Brave New World'," says Andy Bell. "Written almost a century ago, it now feels more and more like the near future, with its warnings of the dangers of technology, mass media and passivity. May I say, it's a pleasure to be a part of this CD. Congrats to the wonderful Electronic Sound on reaching 100 issues. I'd like to thank you for your support and wish you all the best for the next 100, and beyond."

09. SCANNER 'ROAD GANGS OF HIS DIRT'

"It seems almost inevitable that so much more of our future will be automated, likely in the most mundane of situations," muses Robin Rimbaud. "At present, we've adapted to bots answering our technical questions on websites and to robot shopping deliveries, but where does that leave music composition? With this, I used software to generate the harmonies and rhythms. Naturally, I made decisions, but the source of the material was automatic, right down to the software picking random radio stations to sample. Even the ridiculous title was automatically generated. Unfortunately, I still had to write these words."

10. HANNAH PEEL 'GOODBYE EARTH'

The final track on Hannah Peel's 2020 album, 'Mary Casio: Journey To Cassiopeia', is a seven-movement odyssey for analogue synths and 29-piece colliery brass band. "I had this name, Mary Casio, for a long time," explains Peel. "And this idea of a crazy space lady who would play on her Casio keyboard. Then I found out there is a star constellation called Cassiopeia. It became clear Mary was going on a journey into space, but whether she goes into space or not is up to the listener. When you take your mind away from life and you listen to music, you go to a different place. That's something really special to be treasured."

11. SPACE AFRIKA 'WITH YOUR TOUCH'

Wherever you choose to dip in, Space Afrika's exquisitely melancholic sound palette takes you to another dimension. Taken from the Manchester duo's 2021 album 'Honest Labour' – all "ambient unrest" and "cosmic downtempo" – its hazy, introspective drift taps into a future that looked like it was evaporating before their very eyes. 'With Your Touch' is a short but strangely sensual interlude – 47 seconds of all-enveloping escapist bliss, like being cut adrift in some far-off galaxy.

01. BLANCMANGE 'SOCIAL SECRETARY (DEMO)'

"The verses describe fictional and non-fictional events at the art college I attended," says Neil Arthur. "Including a very real and significant music event headlined by The Only Ones, where I met my long-term partner. True to Blancmange, I focus on the social secretary, responsible for putting this and many other gigs on at the college. As I was developing the song, my partner happened to ask, 'Why does everyone wear fingerless gloves in dystopian films?'. I thought, 'That'll do for the chorus, too'. Looking back, I wonder… is the song set in a parallel universe of future pasts?"

02. NIK COLK VOID 'BIG BREATHER'

"This was a game-changer in the studio. It feels methodical in creation but loose at the same time. I enjoy its playfulness and how fragile it can feel with a groove on the verge of collapse. The escalating moments that cut off without warning can be quite exciting, especially when I'm performing this live. Although this is the simplest track on my album, it's my personal favourite and introduced different ways of thinking for future ideas."

03. PUBLIC SERVICE BROADCASTING 'DER RHYTHMUS DER MASCHINEN'

Taken from PSB's 2021 long-player 'Bright Magic', 'Der Rhythmus Der Maschinen' ('The Rhythm Of The Machines') is heavily influenced by 'Metropolis', Fritz Lang's 1927 expressionist sci-fi film. "As a vision of a mechanised, soulless, machine-driven future, 'Metropolis' laid a path for much of what was to come in science fiction and beyond," says J Willgoose Esq. "This track, which features samples of 1928 Berlin street noise culled from Walter Ruttmann's 'Wochenende' ('Weekend') and has a guest appearance from Blixa Bargeld, is less a direct vision of the future and more a glimpse of how people pictured it almost 100 years ago."

04. IAN BODDY 'TONE 7'

"A self-playing aleatoric composition on a Serge modular system with two voices playing in Messiaen's Mode 2 scale. One of the big questions floating about at the moment is what the consequences of AI will be on the creative process. This piece poses a similar conundrum, albeit from a different angle. The patch created for 'Tone 7' is essentially the composition itself. Once it gets going there is no further input required from me. It will continue to play for as long as you want, formless but never repeating itself exactly. The modular is the algorithm."

05. MOOR MOTHER 'WE GOT THE JAZZ'

"Free jazz looks at time as not linear," says American poet and musician Camae Ayewa, aka Moor Mother. "It says, 'I'm going to reach into the unknown and pull something out. To me, that's a liberation technology. You can't just rely on the things that we see… you have to tune into what we *feel*. It's about realising that there's so much history right under our feet. It's also realising we didn't start in this world from zero. The path that we are on has already been set – we're just continuing the journey. That relieves a lot of pressure, to not see it as this individual journey, this twirling through space. We are rooted and connected."

06. GAZELLE TWIN 'METRO'

"'Metro' is taken from the live project and album, 'Kingdom Come'," explains Elizabeth Bernholz. "It was inspired by JG Ballard's vision of future north-west London where the domesticated middle classes become feralised by a persistently transactional way of life, controlled by the carefully crafted architecture of consumerism. He wrote the novel in 2006, his last work, and so many aspects of it have already come to pass."

07. D'VOXX 'TELESCREENS'

"Initially considered an exciting and enjoyable tale, George Orwell's dystopian novel, '1984', was frequently taught in schools to cultivate a sense of progressive self-satisfaction in post-war Western democracies," says d'Voxx's Nino Auricchio. "However, almost four decades later, our world resembles Orwell's Big Brother society. Public discourse is muddled by doublethink, and what was once true no longer holds. 'Telescreens' alludes to how this underlying fear is applicable to our current world. The dense tapestry of beats, telecoms samples and pulsating bass symbolises the human spirit's fight against oppression, while the voice reminds us of our cruel reality."

08. FUTURE CONDITIONAL 'MUSIC 4 EVER-4'

On their album 'Isotech', Future Conditional conjur the soundtrack to a future club, in which humans are barred and androids dance around the clock in perpetuity. "We've endeavoured to pursue that concept on this new track, 'Music 4 EveR-4', but go one step further by replacing humans with synthetic voices, from text-to-speech software," says Glen Johnson. "There's a debate raging right now about chatbots replacing humans in work conventionally tasked to them, but in a context like music, AI can be a complementary collaborator. The EveR-4 is a Korean android. It has an artificial tongue and can be fitted with legs, but no claim is made of it being able to walk – or dance."

09. BENGE 'FLAT PACK JET PACK'

"The future we were promised was a big lie. I can remember growing up watching every single science fiction TV series and movie, hoping one day to be living in my perspex tower block, my flying car hovering outside. Nothing accurately predicted our current world, which aside from the numerous flatscreens that dominate our lives, looks almost the same as it did 50 years ago. Those exotic near-future realms only exist now as distant memories, as pure flights of fancy over a brightly coloured but rainy cityscape. And this is the flight path I wanted to take you on with this track, using our non-existent, flat-pack jet packs."

10. LUKE SANGER 'LIVING ALGORITHMS'

"This track is based on a future where living things and algorithms have become one and the same. It's a hybrid environment represented by minimal threads of sound – both acoustic and electronic, to represent the natural versus the synthetic – weaving together to become whole."

11. POLYPORES 'NON-PHYSICAL LIGHT BEINGS'

"I came across the phrase 'non-physical light beings' in a book I was reading," says Stephen Buckley. "And that got me thinking about the idea of something existing or living in a way which is incomprehensible to humans. I wanted to create a piece of music that, like these theoretical beings, was beautiful in some sense, but also lacking a familiar structure or rhythm. It was performed live on my modular using Jroo Loop, Make Noise Morphagene and Mimeophon to build up layers of freeform loops, with sounds from the DPO and QPAS synth modules."

12. PATTEN 'FLY'

Made entirely from text-to-audio AI-generated sound sources, Patten (Damien Roach) describes his 'Mirage FM' album as a "trippy joyride through contemporary music, a radical glimpse into the near future and beyond". He's not wrong – its half-remembered, spectral forms veer gradually through fragmented hip hop, musique concrète, ambient, jazz and techno hues, adorned with requisite warp and crackle. "I wasn't planning on making an album, but this new lo-fi AI tool lets you create audio from text descriptions," he says. "Experimenting with it a bit, I realised you could use the material as an infinite sample source for making new music, so that's what I did. 'Mirage FM' is based on the hours and hours of recordings I made from this intense blast. Then it was about a forensic editing process, cutting and splicing these weird part-alien, part-familiar sounds into holographic songs."

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SHARING IS CARING

Mysterious mini synth with impressive cloud connectivity

Has the vaunted Teenage Engineering OP-1 finally met its match? The WoFi, by French designer Aymeric Alandry, would have us believe so. A powerful instrument in a diminutive package, the WoFi is a “neo-retro” portable synthesiser and lo-fi sampler that lets you record, mix, tune and share sound samples over a proprietary cloud platform – swish. Purportedly in its final stage of development, Alandry’s synth is being produced by Kiviak Instruments, a relatively unknown French company specialising in cloud platform management, and rumour has it we could see the WoFi materialise as soon as August. Watch this space. **kiviak-technologies.com**

PULSE

KIFFIE

Love, metaphysics and riotous synthpop

WHO?

Kiffie is the electronic alias of Daniel Kiff – a talented and phenomenally productive artist based in Norwich. His releases have showcased an expansive knowledge of synthpop and a remarkably fluid set of influences, framing lyrics that carry an emotional sensitivity and worldly awareness.

WHY KIFFIE?

"I almost never write a song that isn't about something real, whether that be love, politics, the state of the world, or habitat destruction," he says. Clearly a deep-thinking electronic artist, he muses, "Perhaps most are about exploring the human condition and asking, 'Who are we?' and 'Who am I?'." Kiff has been independently releasing music via Bandcamp since his 2021 debut album, 'Eight Ways It Ends', which he describes as an exploration of our mortality and potentially apocalyptic demise.

TELL US MORE...

Kiff released two albums in 2022 – the gloomy and sensual 'Pixellation', and the sci-fi opus 'Interplanetary Exodus'. For all its grim and grey textures, 'Pixellation' was inspired by the idea of "finding love and wanting special moments to last forever", and it culminates with the infectiously heartfelt longing of 'Kissy Kissy'. On the flip side, 'Interplanetary Exodus' documents the increasingly plausible notion of a colony of surviving Earthlings escaping their ravaged home for planetary pastures new, Kiff's delicate voice lamenting the people left behind to perish. Not one to ever rest on his electropop laurels, Kiff's prolific streak continues with 'Daring The Darkness', released last month. Perhaps his most sombre work to date, the album showcases the rapid evolution of the Kiffie template, with the addition of Interpol-esque guitars alongside masterful synth hooks.

MAT SMITH

'Daring The Darkness' is out now on Bandcamp

THAT'S DOCTOR PLASTIK TO YOU

Richie Hawtin announces PhD scholarship

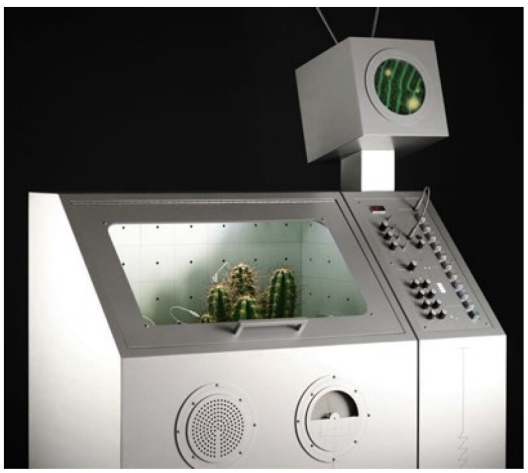
One of the more surprising collaborations, Richie Hawtin and the University of Huddersfield have unveiled the Richie Hawtin PhD Scholarship in Electronic Music, Cultures and Production.

"My hope is to offer my experience and insight into the many areas of techno culture that I've been involved in for over 30 years, to assist in a student's exploration of the past and the inner workings of our industry and to offer them a new critical analysis from a contemporary perspective," says Hawtin. Applications are now being accepted through to September. **hud.ac.uk**

NIP IT IN THE BUD

Synth uses "biodata" to make music

Plantwave is a little device that converts changes in the electrical conductivity of plants into MIDI data, effectively allowing plants to sing. Swedish polymath Love Hulten recently took this one step further, hooking up some cacti to probes, and sending the signals to a couple of synths – a Korg NTS-1 and a Hologram Microcosm granular effects pedal. The result? This stunning machine called Desert Songs, which hums and bleeps like nobody's business. **lovehulten.com**



ENIGMAS

Sweeping through the forgotten corridors of sound, **Scott Blixen** sets his sights on **R D Burman**

Over five decades, Indian film composer Rahul Dev Burman revealed a flair for outrageous sonic sorcery. At the height of his powers, he was generously spicing his music with synthesisers and otherworldly effects in collaboration with the country's foremost electronic pioneers.

In the early 1970s, Burman began challenging India's synth guru Kersi Lord to conjure up sounds that only existed in his head. In order to realise one song, a unit of four oscillators was commissioned that bears a striking resemblance to the equipment used by Silver Apples.

Charanjit Singh – whose 1982 album 'Synthesizing – Ten Ragas To A Disco Beat' is now regarded as a precursor to acid house for its use of morphing 303 basslines synced to an 808 drum machine – expanded Burman's palette with the Clavioline, the Farfisa Transicord and a range of Roland gear.

Burman's theme to 'The Burning Train', from 1980, is both bananas and brilliant. While revealing an obvious debt to John Barry, it unexpectedly veers off into passages of sequenced electronics and vocoded vocals. On paper, it shouldn't work, but in Burman's hands, these elements are fused into a mind-melting whole.

The soundtrack to 'Shaan', also from 1980, is no less awe-inspiring. In it, electronics teleport a vast orchestral edifice into another dimension. 'Pyaar Karne Waale' is arguably Burman's response to 'I Feel Love', with legendary singer Asha Bhosle playing Donna Summer to his Moroder.

1981's disco-flavoured odyssey 'Zamaane Ko Dikhana Hai' has a potent psychedelic undertow and may represent Burman's freak-a-tronic apex. The opening track employs every weapon in his arsenal, as drum machines merge with tablas and the orchestra battles with arpeggiated synths tearing through the mix.

As the electronic instruments that peppered Burman's work evolved, India's gargantuan film orchestras were rendered obsolete, which was a profound tragedy, as his juxtaposition of syrupy sweet strings and feral synths created sublime tension.

Listening to these albums free from their cinematic context is no impediment to experiencing their breathless wonder. The sudden gear shifts that characterise R D Burman's most audacious work may have been created to keep filmgoers captivated, but they give it a Faustian, cut-up quality.

KEY PLAYER

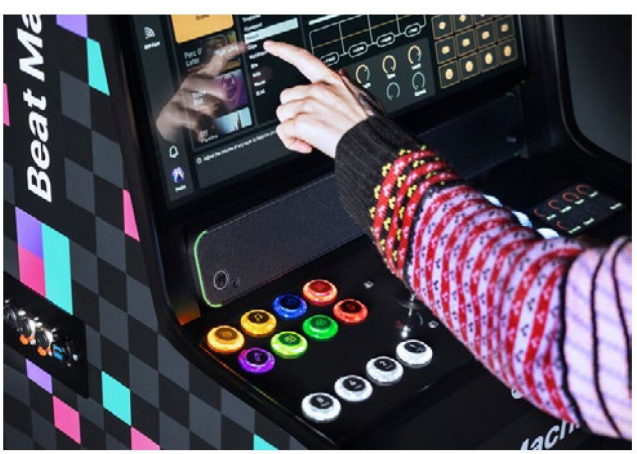
Legendary touch keyboard makes welcome return

The rejuvenation of Buchla continues apace, and next up is the LEM218v3 touch controller. A capacitive keyboard based on the iconic 1973 Buchla Music Easel, it retains every bit of the original's functionality and gorgeous aesthetic, though not without some serious mod cons as you would expect. These include MIDI polyphony and USB connectivity, a multipurpose touch strip allowing for pitch bending, modulation and more. On top of that, the LEM218v3 is compatible with all things Eurorack, which will doubtless be good news to the many of that persuasion. Get connected for $1,299. **buchla.com**

PRESS START TO PLAY

Music production software for gamers

Some time ago we brought you news of Endlesss, a "social music creation platform" that lets you collaborate with others while producing. Now, Endlesss is taking that service one step further with the Beat Machine, an arcade cabinet crammed to the joysticks with production software. Across three modes – Arcade and Open Mic for your jam sessions, and Studio, which lets you host VST3 plugins, hook up instruments, and make music in real time with others around the world – Endless arcade is a truly serious bit of kit. You'll be lucky to get your hands on one though, with an initial release of just 25 units and pre-orders starting at a cool $9,999. **endlesss.fm**



PULSE

ALBERT.

Hong Kong psychedelia to spin you round

WHO?

Taking their collective name from a mural on a restaurant wall in their native Hong Kong, Joel Azwar (guitar, vocals), Gabriel Lopez (bass, vocals) and Max Havekost (drums) formed ALBERT. back in 2015. They specialise in dreamy electro-funk that keeps on giving, with hook-laden choruses, slapping guitars and heady, shimmering synths typifying much of their output. The trio met in high school and found that they "naturally formed a musical bond with each other", although nowadays that bond has to traverse land and sea with Azwar and Lopez living in Canada and Havekost residing in England.

WHY ALBERT.?

Their debut album 'Mystic Dream Rotation' was released earlier this year, and it lives up to the promise of 2020's 'ALBERT. I' EP. From the opener 'Stepdown', built around a gutsy bassline, to the laid-back, trippy grooves of the title track, listening to 'Mystic Dream Rotation' is like leaping into a kaleidoscopic rabbit hole, all bright colours and reflected shapes in the form of intricate but memorable melodies and hazily ruminative lyrics. Meanwhile, the spoken-word interludes and diverse samples magnify its already surreal hue, as if along the way you've discovered a luminous potion labelled "DRINK ME" and downed it in one. Rather than shrinking you, however, it simply serves to expand your mind.

TELL US MORE...

One of the most distinctive things about ALBERT. is how they successfully blend more overt, modern influences like Tame Impala and 'Humanz'-era Gorillaz with the likes of funk pioneers Parliament and Cameo, and Japanese city pop artists like Mariya Takeuchi. As a result, their music is danceable and fresh, but still retains a much-coveted elusiveness. Curiouser and curiouser!

IMOGEN BEBB

'Mystic Dream Rotation' is out now on Lagoon

EASY TAIGA

Semi-modular action from Pennsylvania

Iconic Eurorack company Pittsburgh Modular have welcomed a new semi-modular instrument to the family – the Taiga. This compact and fully self-sufficient system is also begging to pair up with your wider Euro setup. The synthesiser, say PM, consists of "a trio of huge analogue oscillators, the unmistakably smooth sound of the Pittsburgh Filter, and the warmth of our Dynamics Controller", as well as onboard analogue delay. It has all the makings of a reliable and rich-sounding synth that will help ground your current setup, not to mention a rather nice external design that's in keeping with the US developer's markedly more colourful new aesthetic. The Taiga will further expand your sonic potential with an intriguing new VCA technology that adds dimension to your sound, by way of the previously mentioned Dynamics Controller. See what the fuss is about for £715. **pittsburghmodular.com**

SILENT NIGHT

Earphones made for more than just music

JBL have carved out a niche in the market with their ultra-reliable Bluetooth speakers, and their new wireless Tour Pro 2 earphones add further clout to their name. Using four noise-sensing mics, you can fine-tune your input depending on what you're listening to or where you are, with a highly capable Smart Ambient mode which allows you to keep abreast of all external noise without losing the peace and quiet. And thanks to the snazzy touchscreen case, you can control them without ever looking at your phone. Intelligent buds for only £250. **uk.jbl.com**

NEEDS MUST

Freewheeling through time and space, **Kris Needs** continues his adventures in sound. This month: **Dorothy Moskowitz**

It's impossible to convey the seismic impact The United States Of America's first and only album had on my 14-year-old brain in 1968. Initially unable to afford the requisite £1.60 for the LP, its single 'The Garden Of Earthly Delights' became the first 45 I ever bought.

Whiles Joseph Byrd's twittering oscillators ignited its horror hothouse charge, singer Dorothy Moskowitz unleashed her spine-freezing mix of magisterial Grace Slick sensuality and icy Nico cool, describing a nightmare garden overgrowing with mutant death that haunted a girl's eyes as a window into her hallucinogen-scorched soul.

The B-side's 'Love Song For The Dead Che' caught Dorothy softly caressing Byrd's poignant tribute to the fallen Cuban rebel icon over dreamy proto-synth clouds and electric violin. Soon the album compounded a lifelong obsession that placed The United States Of America next to The Velvet Underground as lowlife US sonic innovators.

As the binding sound of this landmark in electronically hot-wired avant-rock, it was assumed Dorothy would enjoy solo success when the band dissolved after its release. Instead, after voicing 'Sesame Street' cartoons, and singing with "Country Joe" McDonald and a jazz vocal set, she spent 30 years writing music for and teaching children and seemed to vanish until 2021's novella soundtrack, 'The Secret Life Of Love Songs', with Tim Lucas.

Then, last month, renowned US imprint Tompkins Square released the spellbinding 'Under An Endless Sky', which manifested when veteran Italian avant-garde composer Francesco Paolo Paladino invited Dorothy, now 83, to reinterpret lyrics by writer Luca Chino Ferrari over his music.

Tangibly revelling in her typical experimental approach, that unmistakable voice sparks familiar tingles as it scythes through the 24-minute title track's complex flowing drone, harmonium tones initially conjuring 'Desertshore' Nico before Dorothy embraces the swirling violins, woodwind and virtual textures with extraordinarily evocative results. The spell continues through life-reflecting reveries such as 'Cut The Roots', 'My Doomsday Serenade' and 'Unknown To Ourselves', adding jazz flavours and ghostly twinkles to the suggestive tapestries, with 'My Last Year' beautifully heisting 'Something's Coming' from 'West Side Story'.

So, 55 years since Dorothy Moskowitz stole my heart, I find myself swooning again to that unearthly voice, flying again over mesmerising musical backdrops.

And talking of electronic visionaries, Nina and I are giving her late creative partner Andrew Weatherall our own 60th birthday gift on 1 May in the under-the-radar tradition closest to his heart; an intimate free event celebrating his beloved Moine Dubh label at a disused Dorset church.

And that's not all…

Music for Stowaways

The first reissue of seminal early 1980's electronic recordings
from the **British Electric Foundation (B.E.F.)**,
aka **HEAVEN 17** / ex-**THE HUMAN LEAGUE**'s
Martyn Ware and Ian Craig Marsh,
with Adi Newton (**CLOCK DVA / THE FUTURE**),
and John Wilson (**HEAVEN 17**),
originally a cassette-only release (1981).

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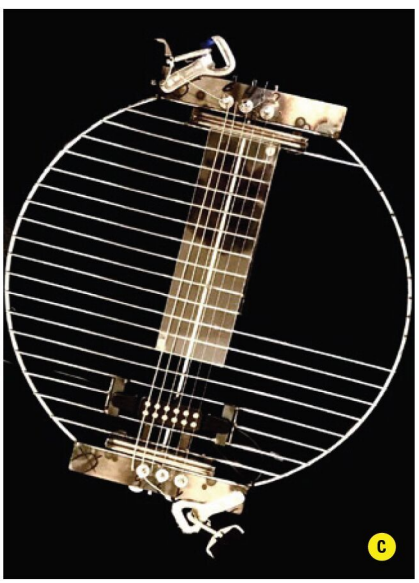
RAISE THE BAR

Hosted by Georgia Tech in Atlanta, the **Guthman Musical Instrument Competition** – referred to by The Guardian as "The Pulitzer of the new instrument world" – is a truly unique event that gathers together the most forward-thinking musical inventors from around the globe. We caught up with some of this year's finalists, whittled down from hundreds of submissions, to learn about their madcap designs. And, trust us, they really are mad as hatters

WORDS: ISAAK LEWIS-SMITH



A ABACUSYNTH

ELIAS JARZOMBEK
USA

Featured in Electronic Sound last year, the Abacusynth is a playful and accessible instrument that teaches the user about the fundamentals of synthesis and timbre, helping them to visualise the process of sound manipulation via spinning and sliding blocks. Motivated by a desire to build an instrument that could easily be interacted with, Elias says he drew the on skills he picked up at NYU's Tisch School of the Arts to create this incredibly imaginative sound machine.

Elias' advice to budding instrument makers

"It might sound obvious, but start with the thing that is most crucial to your instrument. In my case, I knew nothing would work if the spinning action wasn't fun, so I started there and spent the most time developing that interaction. Also, sometimes there's no way to know the correct approach until you just make something that works – then you can iterate and refine it from there. Oh, and always use cardboard first!"

B CHAOS BELLS

LIA MICE
UNITED KINGDOM

Measuring a whopping two square metres, Chaos Bells is made up of 20 pendulums, augmented by an embedded accelerometer which generates bell tones and drones. In development for over 18 months, it's Lia Mice's response to the synth companies who only produce small desktop instruments, and it brings a real theatricality to electronic music.

Lia's advice to budding instrument makers

"I recommend finding and joining a community. This could be as part of a makerspace, a group of friends or a community organisation. Designing digital instruments is a multidisciplinary artform, requiring broad knowledge in a wide range of areas, including sculpture, coding, woodwork, 3D modelling, metalwork, physics, acoustics… the list goes on. If you can't find a community to join, start your own."

C GRILLOPHONE

STEFAN LICHERI
VENEZUELA

Inspired by the notion of upcycling, Stefan Licheri's Grillophone turns the humble grill into a powerful instrument. Resembling a lyre, the strings and playable bars are strummed, struck and amplified akin to an electric guitar. It can also be played in any tuning system, thanks to its changeable fretboards, and is capable of hooking up to synths and DAWs, opening up its sonic potential even more.

Stefan's advice to budding instrument makers

"Be curious, experiment and don't be afraid of failure. It doesn't matter how crazy the idea might sound – just go for it."

D HITAR

ANDREA MARTELLONI, ANDREW MCPHERSON & MATHIEU BARTHET
UNITED KINGDOM

The HiTAR transforms the guitar into an augmented electronic instrument, which reacts to specific gestures and hits. DSP engineer Andrea Martelloni says he took inspiration from new expressive keyboard controllers, where particular finger motions produce multidimensional variations of sounds. Andrea has been working on the HiTAR since 2019, but says it only made its first "bong" last September. Here's to it having many more.

Andrea's advice to budding instrument makers

"The best way to begin designing instruments is to start from the aesthetics and the practice that you want to enable, then figure out the technology later. The purpose of a musical instrument is to find a place in a studio, stage or bedroom, and so it needs to find its way into a genre or a community. Then, when many people start experimenting with it, the musical revolutions slowly start happening. I've taken this idea partly from Craig King, one of the judges at Guthman, and I think it's really solid advice!"

E THE TERPSICHORA PRESSURE-SENSITIVE FLOORS

IRAN SANADZADEH & SEBASTIAN COLLEN
AUSTRALIA

Translating movement into music, this stunning instrument invites users to control sound by re-distributing their body weight over a tangram of pressure-sensitive panels. Inspired by Australian dancer Philippa Cullen's original set of pressure-sensitive floors from the 1970s, Iran Sanadzadeh's initial design was completed in 2015, and she has been improving it since then alongside musician Sebastian Collen.

Iran's advice to budding instrument makers

"Even if it doesn't really work very well, keep playing it. Slow down your expectations of a result and refine the instrument. You can't plan all the possible discoveries of the new instrument – some of the best things will come out from practice and being playful. Lastly, if you think it's cool, it is."

F ACTIVE SHOULDER RESTS (ASRS) FOR VIOLIN

VIOLIN ASR PROJECT
USA

The Active Shoulder Rest, the brainchild of polymath Seth Thorn, is an augmented variation of a popular violin accessory. It couples with the acoustic instrument and actuates it through vibration, essentially allowing a violinist to transform their instrument into a synthesiser. It can also be hooked up with DAWs or effects pedals of the musician's choosing.

Seth's advice to budding instrument makers

"It's important not to be the only judge of your work, but to let others try it. I sat on the ASR for a long time. I didn't really understand what it could do for violinists until I got it out there, and that changed the way I was using it."

G KANCHAY_ YUPANA//

PATRICIA CADAVID H
COLUMBIA / SPAIN

Combining ancestral technologies with contemporary electronics, the Kanchay_Yupana// is a tangible sequencer inspired by the Andean Yupana, an ancient counting system similar to an abacus. Users arrange seeds on a board equipped with light sensors. The sensors detect the position of the seeds and send real-time motion data to a virtual drum machine, which in turn generates patterns that transform live into different rhythms.

Patricia's advice to budding instrument makers

"Practice and experimentation are essential to developing a project. People should look beyond the hegemonic examples and into their communities for creators with other types of experience and cultural backgrounds. And never postpone experimenting – sometimes the most wonderful experiences come from the imperfection of practice."

H SENSOR 32

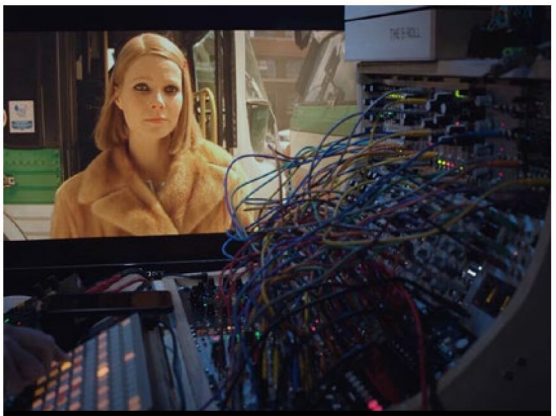
KARL GERBER
GERMANY

Sensor 32 is a multidimensional contactless instrument made up of 32 proximity sensors, allowing the user to affect sound output by simply waving their hands and feet. Imbued with an innate performative element, Munich-based Karl Gerber calls his innovative machine "a moving landscape", and was motivated by wanting to help audiences make sense of electronic composition. For this, his first-ever instrument, Karl says he drew inspiration from the theremin, as well as the work of Max Matthews and Christina Kubisch.

Karl's advice to budding instrument makers

"He who makes what everyone else makes, gets what everyone else gets. Be original and authentic."

For more on the Guthman Musical Instrument Competition winners, go to guthman.gatech.edu



PULSE

THE B-ROLL

A/V feast from film/modular maestro

WHO?

When he's not busy slicing and dicing movies for major studio sizzle reels, Charlie Visnic can be found in his own studio in southern California using his modular rig to puree video clips in an altogether different way. By sequencing tiny fragments of film through a nest of wires and Eurorack gear, he produces clever and engaging experimental music for his Instagram feed that never disappoints.

WHY THE B-ROLL?

Visnic's posts span an imagined grey area, as familiar and not so familiar film scenes are broken down into minute chunks that blossom into tantalising, hooky loops of sight and sound. Even within the constraints of Instagram, his work has the sort of outsized appeal that is often hard to come by on the social media platform. Visnic says his favourite sources include 'Eternal Sunshine Of The Spotless Mind', 'The Royal Tenenbaums', and 'Boogie Nights' (duh). But it's his manipulation of off-the-radar segments, like a pair of Japanese shamisen players, that add the truly intriguing element.

TELL US MORE...

If you break down Visnic's process into layman's terms, he reworks the film clips live on a laptop, before manipulating them further through his modular setup using a piece of software called 64 Fingers, which he modified for film, creating a new version called 64 (Video) Fingers. The software allows moving-image clips to be sequenced, layered and processed as he sees fit, and apart from how sonically interesting the resulting work is, the looping video snippets are equally mesmeric. Visnic currently has no plans to release material beyond the realms of the internet, but extended mixes of what he's been able to conjure can be found on YouTube.

JOE SILVA

For more, visit youtube.com/@theb_roll

REGEN FOR HIRE

Synclavier's powerful revamped FM synthesiser

If the future of additive synthesis is closer than we think, the chances are Synclavier Digital has something to do with it. The Regen is a digital frequency modulation desktop synth, featuring an enhanced Synclavier II Digital Signal Processor engine, allowing total control of 24 harmonics on top of traditional subtractive synthesis algorithms for super saws, PCM square waves and noise generation. And with over 550 timbre presets across 10 newly commissioned timbre libraries, and more than 2,000 in-built samples (royalty-free, we're told), the Regen also allows layering of up to 12 partials with any combination of sound generators, all with different dynamic effects. Polyphonic aftertouch and MIDI Polyphonic Expression are both supported by Regen as well. All that for £2,198, you say? Worth it. **synclavier.com**

HIVE MIND

Artificial intelligence sound project released on vinyl

In 2021, Japanese sound designer Yuri Suzuki joined forces with Margate's Turner Contemporary gallery for an innovative sound project exploring artificial intelligence and local history. As part of a sculptural exhibition called 'The Welcome Chorus', they solicited thousands of lyrics from Kent residents, who reflected on the history of their county. These words were then processed by specially trained AI software, and played through 12 horns – each representing a district in Kent – creating one continually evolving song from this huge bank of words, as well as adding the voices of gallery visitors who sang into the horns. Produced and arranged by Margate composer Hughie Gavin, the results are now being pressed to vinyl for a special Record Store Day release on 22 April. **turnercontemporary.org**

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ANTONY SZMIEREK · SOUNDS FROM THE OTHER CITY TAKEOVER
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NISH KUMAR · BRETT MORGEN PRESENTS MOONAGE DAYDREAM
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DARK ARTS

A cool-looking turntable built to last

Colour us interested when we see a turntable marketed as “imposing”. Thuono really aren’t joking, though, judging by their brand-spanking new TH400 deck. Looking more like an axletree than a record player, this highly prized piece of engineering features a 400mm diameter platter and a chassis made of aluminium and “black Marquina marble”. Fancy. But we’re most intrigued by its audio clamp. Made of bronze and aluminium, it presses your record down so it lies tighter on the platter for increased sonic richness. Get in touch for prices (yes, that does mean it’s expensive). **thuonoaudio.com**

PHOTO: DELFINO SISTO LEGNANI E MELANIA DALLE GRAVE, DSL STUDIO

PULSE

TRISTAN

Experimental swooner from Flanders

WHO?

Tristan is the alter ego of Belgian popstress Isolde Van Den Bulcke, who studied at the Royal Conservatory of Ghent and Tilburg University. Van Den Bulcke won the 2015 East Flemish music award as a teenager, signalling a prestigious pedigree which is perceptibly woven into her jazzy vocals and atmospheric synth stylings. After the release of her debut EP in 2018, Tristan immediately drew comparisons with venerated Belgian jazz singer and composer Mélanie De Biasio – no mean feat – and has since been invited to tour with a host of acclaimed compatriots, from Tamino to dEUS frontman Tom Barman.

WHY TRISTAN?

Tristan is certainly towards the smart end of electropop, grazing in the lush pastures between St Vincent and Arca-era Björk. Her debut album, 'Wellif', carries a rich sense of expanding and contracting scale, from the quasi-industrial beats of 'Hellballad' to the lounging swing of 'It's Him', and the cinematic romance of 'Isuk. Then there is Tristan's captivating voice, which at times sounds more like it's been sampled from a late-night session in a basement jazz club than recorded in a studio. And it's wrapped up rather nicely with some deft production, all handled by the artist herself.

TELL US MORE...

A testament to Tristan's strong musical foundations, it's worth exploring her career leading up to 'Wellif'. Preceding EPs 'Delidomia' and 'Illusje' show the development of her distinctive sound, coming together to feel like an accessible user guide through the annals of Tristan's detailed musical world – which is a highly visual one. She has a fondness for performative costumes, wigs and affecting artwork – witness Tristan applying makeup with a knife on the cover of her single, 'Wildmouth'. A confident singularity that will doubtless yield future treasures.

WILLIAM STOKES

'Wellif' is out now on PIAS

IT'S NOT ROCKET SCIENCE

Astrophysicist and pop-science writer **Andrew May** is back with another stellar book, 'The Science Of Music', and he reckons we need to think deeper about what AI might do for songwriting

WORDS: WILLIAM STOKES

"Writing this book wasn't my idea at all," insists Andrew May.

It was in fact Brian Clegg's, editor of the 'Hot Science' series at Icon Books. After May's well-received 'The Science Of Sci-Fi Music', Clegg suggested he focus on a new title exploring the fundamental relationship between science and music. May confesses he's still getting used to being "the music" guy…

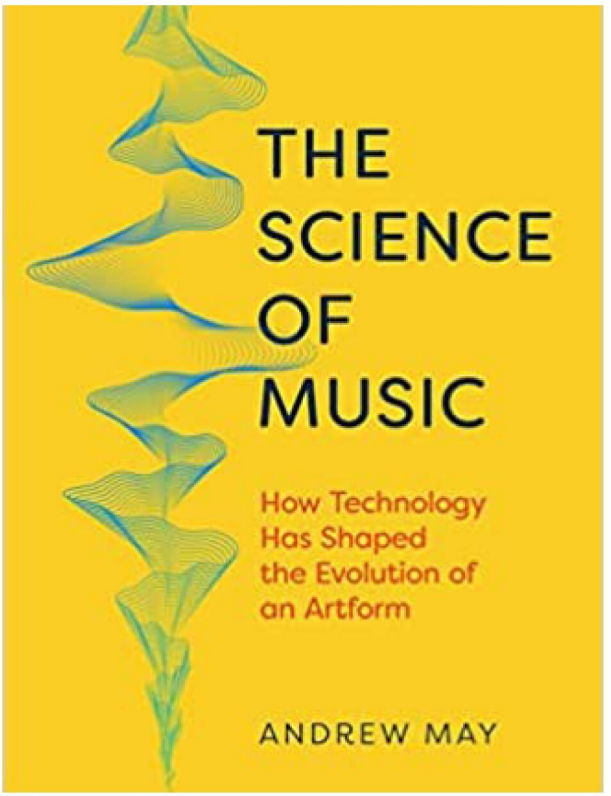
"I'm a scientist first, with a scientist's irritating desire to understand everything in a logical and analytical way," he explains. " Which, of course, isn't the best way to approach music at all."

May makes an important point, that while many scientists are music lovers, not many musicians are science lovers. Even Russian maestro Igor Stravinsky once remarked, after trying to read Lord Rayleigh's 'The Theory Of Sound' (1877), that he was forced to give up because he was "unable to mathematically follow its simplest explanations".

If you find yourself sympathising with Igor, you'll be pleased to hear there isn't much in the way of textbook physics or complicated maths in 'The Science Of Music', a must-read for anyone wanting to understand the world of music without getting bogged down in the, er, science.

In a conversational manner, May rattles through the fundamentals of sound waves, the symbiotic relationship between technology and music, and the neuroscience behind why we "connect" with music. He also looks forward to the many opportunities where science might take the industry next. And the excellent Chapter Four is one of the best whistle-stop tours on the history of electronic music you're likely to read, covering pioneering inventors like Hermann Von Helmholtz, Maurice Martenot and Leon Theremin, and joining the dots with contemporary artists.

"I've been a big fan of Stockhausen since I was a student," says May. "Not necessarily for the way his music sounds, but for the way he spoke and wrote about it, which I've always found very inspirational and thought-provoking. He was constantly experimenting and pushing the boundaries of just what it is we mean by music.



"I think the historical thread, particularly through the 1940s, 50s and 60s, is when we see the most important interconnections between science and music. There was a really strong three-way interaction with electronic and avant-garde composers picking up ideas from science and maths, and sci-fi movies and TV shows embodying that kind of attitude in their soundtracks, which made the link probably as visible and explicit as it's ever been. It's still there today, perhaps stronger than ever, but simply less noticeable."

Inevitably, our conversation arrives at the role of artificial intelligence in music – an anxiety-inducing thought for many musicians. Yet May pontificates with the kind of urbane assuredness you enviably associate with those of a scientific persuasion.

"I think the increasing power of AI is the main thing we have to look forward to – or worry about – depending on your perspective. I don't necessarily mean AI creating its own music from scratch, but increasingly being used as a time-saving aid by composers and songwriters in the way they already employ other types of technology today. If used effectively, it might lead to completely new musical styles and genres."

May makes the equally interesting point that history shows how the ever-shifting tectonic plates of cultural acceptability are in many ways just as crucial as the technological advancements in determining the future landscape of music culture.

"For over 200 years, there's been a steady broadening-out of the very language of music, in terms of the permissible ways that rhythms, melodies and harmonies can be put together. This expansion of musical language was driven primarily by the desire for a greater range of expressiveness, especially when it came to conveying extremes of emotion that hadn't previously featured prominently in music."

If cutting-edge research papers feel impenetrable, it's generally offerings like 'The Science Of Music' that best pave the way for musicians and music fans alike to explore that pervasive yet oblique realm of science and tech – past, present and future. Oh, if only Igor was here to read it…

'The Science Of Music' is out now, published by Icon Books

LOVE MACHINES

Superbooth returns to Berlin next month

Tickets for Superbooth23, Berlin's annual synthesiser extravaganza, are on sale now. Having grown rapidly over the past few years, Superbooth has become a firm fixture in the annual electronic music calendar, and this year's event, which runs from 11-13 May, promises to be the best yet. Featuring a cavalcade of product reveals, performances, workshops, talks and a festival radio station called SooperRadio (which will be broadcasting live from the site), you can also expect to encounter a healthy range of developers from around the world, from LA's 1010music and the UK's ALM/Busy Circuits, to Hong Kong's 1V/Oct and Barcelona's Befaco – an exhaustive list of exhibitors is available on the festival website. Don't hang about though, because tickets are already flying. **superbooth.com**

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Wild Flowers
Reactivate LP

V/A
Snick Snack Vol. 1
Compilation

SCAN ME!

FETCHING

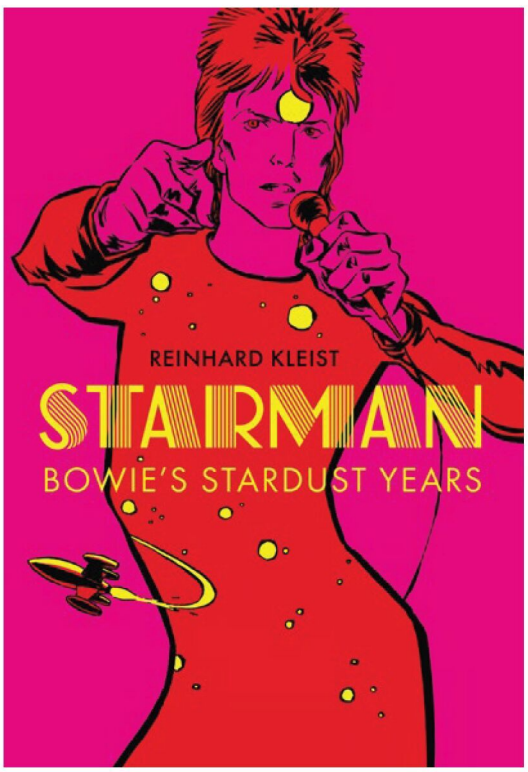
The future of pets is now

From K9 to 2000's must-have Poo-Chi toy, robotic dogs have long since played a part in rounding out the cultural zeitgeist. And these days, we're closer than ever to getting genuinely advanced robotic pets. Seriously, KEYi Tech's PETBOT Loona might look like CGI, but this four-wheeled, two-eared machine is incredibly real, featuring trajectory planning and body and obstacle detection. Powered by a CPU with 5 TOPS (that's tera operations per second…powerful!), the app-supported machine comes with voice commands, gesture recognition, an HD camera, and can identify you visually. It's a snip at $349. Come and meet your new cyber-pet overlord. **keyirobot.com**

A STAR IS DRAWN

Ziggy Stardust gets a graphic novel

Topping this month's reading list is Reinhard Kleist's new graphic novel about David Bowie's androgynous, flame-mulleted alter ego, Ziggy Stardust. Having previously worked on illustrated biographies of Elvis Presley and Nick Cave, Kleist comes up trumps with his bold and characterful drawings, which tell of Bowie's unsuccessful attempts at conquering the London music scene and his creation of Ziggy, before delving into the pop icon's struggles at the height of fame. Published by Self Made Hero in May, you can preorder a copy for £16.99, which includes an art print signed by Kleist. **selfmadehero.com**

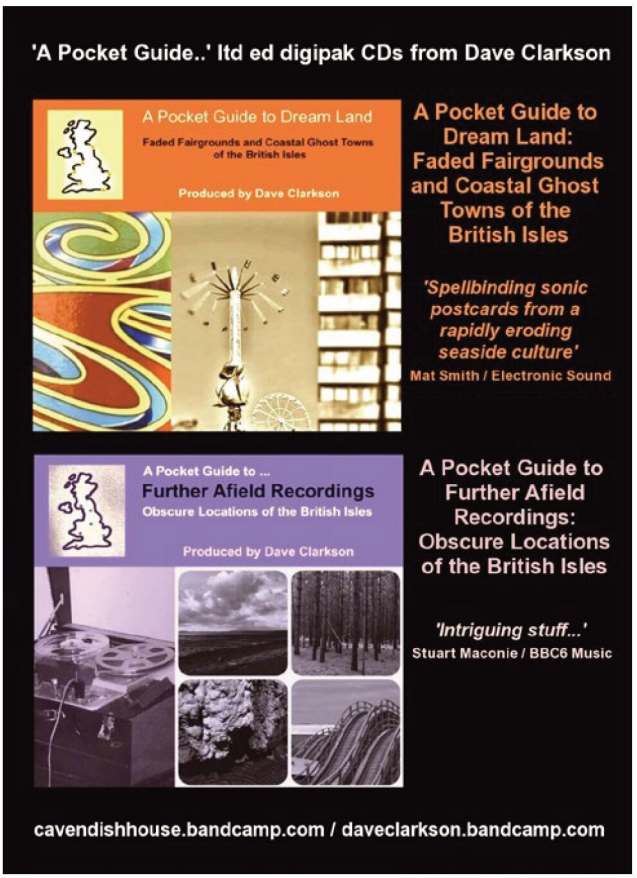


CHILL OUT

Distilling the sounds of polar landscapes

Last month saw the release of 'Polar Sounds', an extra-special, joint field recording project between Cities And Memory, the Helmholtz Institute For Functional Marine Biodiversity, and the Alfred Wegener Institute For Polar And Marine Research.

Over the past year, hundreds of sounds have been collected using hydrophones dotted across the Arctic and Antarctic seas, forming a large sound bank reflecting the changing conditions of our planet's coldest landscapes. Recordings focus on varying aspects of research within the region, from the song of an Antarctic blue whale, to the collosal noise of two icebergs colliding. What's more, each sound has been reshaped and reimagined by over 100 musicians from around the world, resulting in a 13-track album curated by Cities And Memory. You can download the entire album now, and better yet, you're able to name your price. **citiesandmemory.bandcamp.com**



HAUTE COUTURE

NASA's new lunar clobber

Space cadets, you're looking at the Axiom Extravehicular Mobility Unit, produced by Axiom Space for the NASA 2025 mission to the moon. You might be be pleased to know that the new charcoal-grey colour was chosen to conceal Axiom's closely guarded outer fabric design, which earned the Texan company a contract worth $3.5 billion – a secret worth hiding if you ask us. The four astronauts, whose names will be announced next year, will don the classic white suits, which help reflect the harsh sunlight while walking on the moon's surface.

nasa.org

MAKING WAVES

New book details UK electronic fest

First held in Birmingham in 2016, the Seventh Wave Festival Of Electronic Music aims to provide fans with an immersive experience that encompasses conferences, masterclasses and top-tier live performance. Now the history of the event has been documented in a special E-book, available via the Apple store for £7.99, and featuring the work of Wolfgang Flür, Martyn Ware, Thomas Dolby and many others. Be sure to check out the accompanying supplement 'Sounds Of The Seventh Wave' too, full to the brim with recordings from past editions of the festival, with no overpriced beer or a muddy field in sight. **seventhwavefestivalofelectronicmusic.com**

THE BEARABLE LIGHTNESS OF BEING

New projector is a genuine jaw-dropper

Developed by British company Kano Computing, and looking a bit like the mothership from 'Close Encounters Of The Third Kind', the Stem Projector is truly something plucked from the future. This palm-sized machine not only allows you to play your own films, but also to "remix" them, whether that's rotoscoping characters out, swapping colour palettes between movies, or creating "constellations" of similar scenes from different films with the projector's "galaxy view". Preorder for $1,000, with a release date pegged for spring. **stem.tech**

six by seven presents: RADIO BREMEN
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RADIO BREMEN
sixbyseven.bandcamp.com

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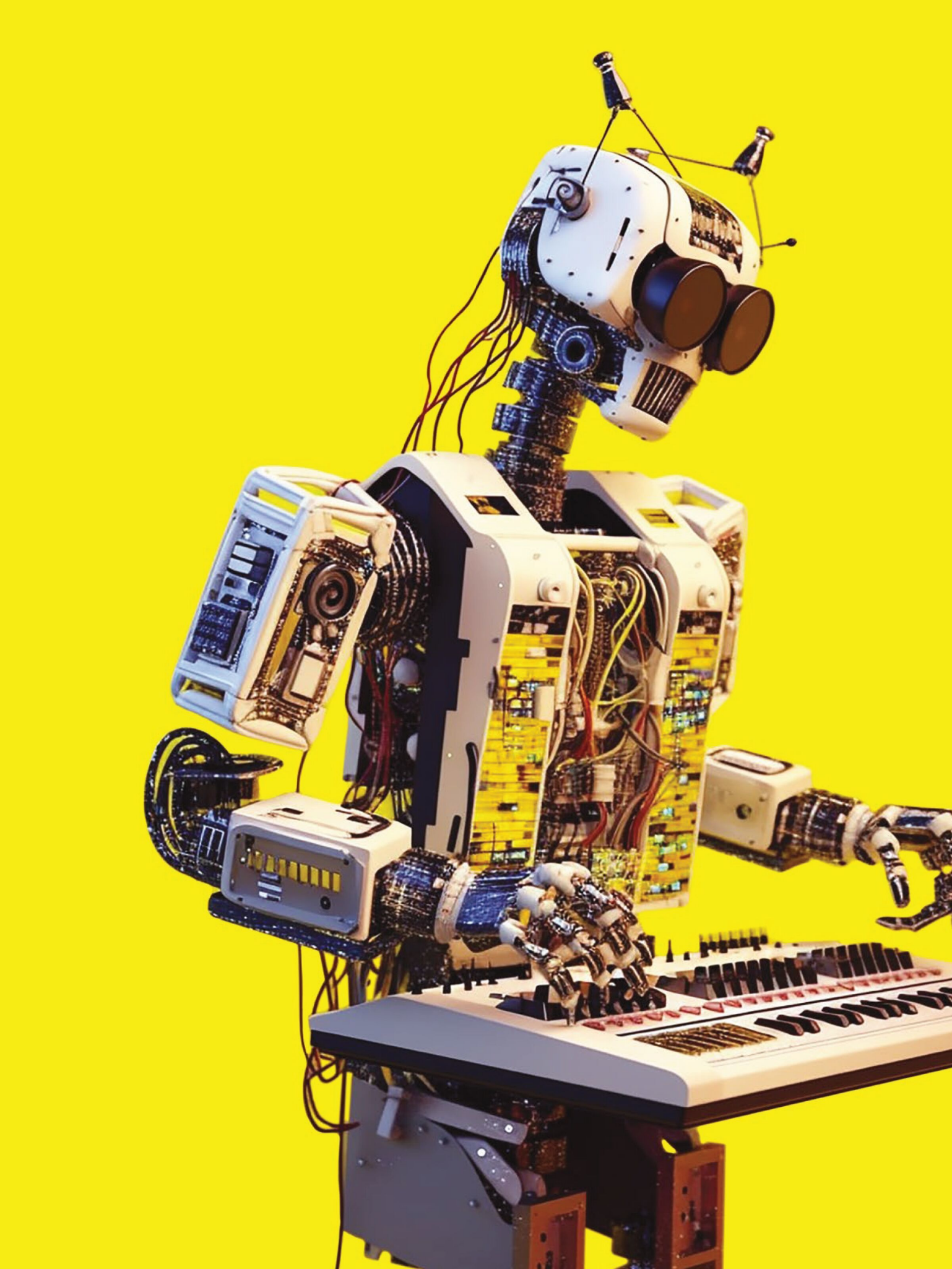
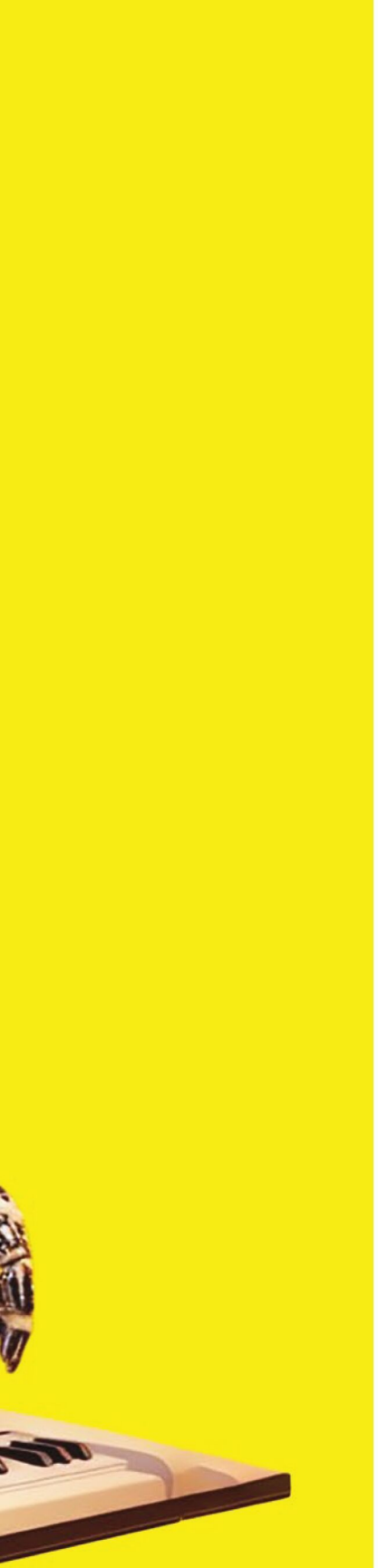




THE FUTURE STARTS NOW

ELECTRONIC SOUND 100 >>
NANOBOTS LOCK IN “THE FUTURE” >>
ALL IMAGES GENERATED BY AI >>
ACCESS CODE 0423 >>
HUMANS ONLY BEYOND THIS POINT >>

TURN AND FACE THE STRANGE

Ch-ch-changes... David Bowie knew a thing or two about the future, but he never wrote a song about astrochickens. And if you don't know what astrochickens are, you really need to read our **Handy Guide To Some Of The Crazy Shit Coming Your Way Shortly (Maybe)**

WORDS: PUSH

FLYING CARS

Let's start with an oldie but a goodie. Flying cars have been a staple of science fiction for generations. They've also been a reality for quite some time, starting with the Taylor Aerocar, which was designed by American aeronautical engineer Moulton Taylor in the late 1940s. Six Aerocars were subsequently built over the next couple of decades, all of which were sold to private buyers.

There have been lots of designs for flying cars since then, with around 25 different prototypes getting off the ground (as in, they literally got off the ground), and the race to produce the first commercially available vehicle has quickened during the last 10 years or so. Among the most likely contenders are the Klein Vision AirCar, the Terrafugia TF-X and the ASKA A5, the last of which is the work of a Californian company and is probably half a fender ahead of the field. A big attraction at the CES 2023 tech show in Las Vegas earlier this year, the ASKA A5 is expected to launch commercially in 2026 and is available to pre-order for $789,000. Woohoo!

THE METAVERSE

Coming to a screen and/or headset near you shortly, the metaverse – both the concept and the name – was first described by American sci-fi writer Neal Stephenson in his cyberpunk novel 'Snow Crash' back in 1992.

According to the big tech companies, who are fast pumping untold billions into securing their piece of this new online world, it will be an immersive 3D virtual space in which users will be able to experience, well… probably pretty much anything they want. But while it's being touted as a supercharged and radically revamped internet, precisely how it's going work, what it's going to look like, and how it's going to be used is still anybody's guess.

Let's hope it won't just be like playing 'The Sims' with a pair of paper 3D glasses glued to your head.

GEOENGINEERING

The scale of the climate crisis is growing with each passing day, so we may find ourselves forced to take some drastic action to save our amazing planet.

Geoengineering, also known as climate engineering, is an umbrella term for activities such as the large-scale capture, removal and storage of carbon dioxide, placing reflectors in space to limit the amount of sunlight that reaches Earth, and using high-flying jets to create a cooling effect by spraying microscopic aerosol particles into the stratosphere. Some advocates of the latter believe we may even be able to refreeze the polar regions by spraying above the Arctic and Antarctica.

Many of the potential solutions offered by geoengineering are very divisive, not least because they could lead to dangerous unforeseen outcomes. How about if everyone everywhere just stopped burning fossil fuels immediately? The problem with that, of course, is it would involve some very wealthy and powerful people not being quite so wealthy and powerful.

DARK FACTORIES

With more and more manufacturing processes becoming automated, we're entering into what's being called the Fourth Industrial Revolution, or Industry 4.0.

Robots have been used in manufacturing for many years, particularly in the car industry, but dark factories take it to another level. These are production plants that operate with no human input whatsoever. As such, there's no need for lighting or heating. Nor indeed, tea or toilet breaks.

There are already a few almost-dark factories scattered around the world. Perhaps the most notable is a plant run by the Japanese company FANUC, which can function for around a month without any human intervention. The FANUC robots are making other robots, by the way, which is a clear indication of where this is heading.

According to the American magazine Assembly, most factories of the future will only have two non-robot employees – a guard dog and someone to feed it twice a day.

NANOBOTS

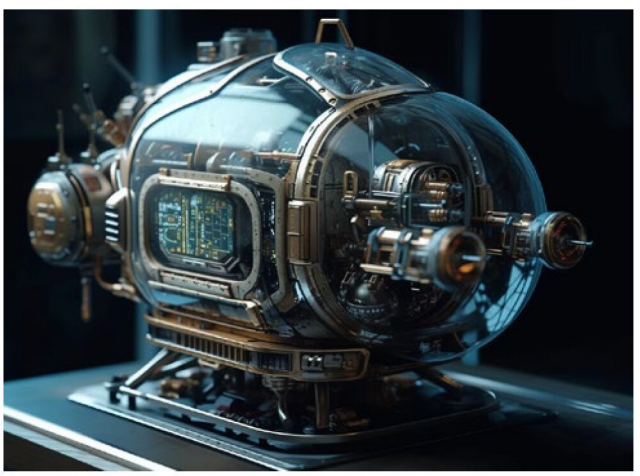
Nanotechnology – the manipulation of matter at an atomic and molecular level – has been used across a wide range of sectors over the last two decades, including health and energy. Nanorobotics is a relatively new field of nanotech and is still very much in development, so much so that true nanobots – effectively teeny-weeny robots – don't exist yet, though it won't be long before they do. In the meantime, simple versions of nanobots called nanomotors are being tested in clinical trials for the treatment of certain types of cancer, and these self-propelled, biodegradable devices are showing promising results.

A key issue with nanobots is making sure they can be controlled in all scenarios. This will be pretty important when there are countless billions of them running around, some of them equipped with artificial intelligence, some of them self-replicating, and some programmed to act together in swarms. You see the potential problem, right? If you're of a nervous disposition, it's probably best not to read Michael Crichton's 2002 novel 'Prey'. You should turn the page before you get to the Grey Goo section at the end of this feature too.

FLYING SYRINGES

So now we all know what it's like to experience a global pandemic. But are there likely to be any others over the next decade or two? Almost certainly. And could they be as deadly as Covid, or perhaps even more deadly? Quite probably.

Thank goodness for flying syringes, then. First developed and patented in the UK in the late 1990s before being trialled in Japan around a decade ago, flying syringes are mosquitoes that have been genetically modified to develop a vaccine protein in their saliva. The mosquitoes are then able to deliver the vaccine into the bloodstream of any human they bite. If you're an anti-vaxxer, you'd better get yourself lots of those insect repellent plug-in thingys and an extemely large swatter.



REJUVENATION

Medical science is advancing at an incredible rate. Over the next decade or two, your treatment could well involve personalised drugs, robotic surgery, synthetic organs, bionic engineering and gene manipulation. You might even be able to reverse some aspects of ageing. Welcome to the weird world of rejuvenation. That is a recognised field of medicine, by the way.

We probably shouldn't get ahead of ourselves with this one, but a research team led by Dr David Sinclair at Harvard Medical School in Boston, Massachusetts, has recently discovered they can rejuvenate cells in elderly mice by resetting what Sinclair likens to "software glitches", with the animals subsequently developing sharper brains and healthier body tissue. Their experiments even cured age-related blindness in the mice. What's more, Sinclair thinks there's a good chance that human cells could be rejuvenated in much the same way. Fingers crossed, you'll soon be able to chuck that hair dye in the bin, then. And if you don't have any hair, well, happy days really are here again.

CRYONICS

This is probably a long shot, but rejuvenation might even be able to help dead folks. Which perhaps explains the rise in popularity of cryonics, where bodies are preserved in cold storage chambers in the hope they can be reanimated further down the line. Technological advances mean that the more recently someone has died, the better chance they have of being successfully brought back to life, which is bad news for American psychology professor Dr James Bedford, the first person to be cryonically preserved. That was in 1967.

The largest cryonics facility in the world is in Scottsdale, Arizona. Founded by the Alcor Life Extension Foundation in 1972, there are currently around 200 people in cryopreservation there, including comedy writer Dick Clair, who gave Alcor his Emmy Award to look after for him until his return. The foundation's website has a section aimed at prospective residents called "Why Scottsdale?", which lists benefits such as "good weather" and "a low crime rate".

Well, you wouldn't want to come back to life to find someone had nicked your Emmy Award, would you?

ASTROCHICKENS

Not to be confused with the Iron Chicken in 'The Clangers', astrochickens are tiny, automated, self-replicating spacecraft designed to explore and gather material from space more quickly, cheaply and effectively than manned missions. Weighing around one kilo and bringing together lots of different technologies, they are able to land on and launch from planets using jets of chemical spray modelled on the natural defence mechanisms of bombardier beetles.

Well, that's the theory, anyway. And while it is only a theory – the brainwave of physicist and mathematician Freeman Dyson, whose other big ideas include the so-called Dyson Scenario, in which a group of immortal human beings can survive the collapse of the universe by stretching time to infinity – many space experts believe astrochicken-style probes will lead the way in our explorations beyond the solar system as the 21st century unfolds.

GRAVITY TRAINS

Like astrochickens, gravity trains are currently just a theory. Unlike astrochickens, they're not likely to ever be anything more. That said, if by some chance they ever became a reality, this would be a ride you'd never forget.

A gravity train was first proposed by British scientist Robert Hooke back in the 17th century. Powered solely by the gravitational pull of Earth, it would run along straight tunnels dug between any two places on the planet. Gravity would draw the carriages downwards for the first half of the journey, accelerating the closer they got to the core, then decelerating as they got further away on the second half of the trip, balancing out so the train reaches its destination at exactly the point it runs out of energy. Unfortunately, the train and its passengers would be reduced to ash long before it got through the planet's crust.

Setting that little problem to one side, the nifty thing is you could get from London to New York in 42 minutes. And from London to Sydney in 42 minutes. As it happens, whatever journey you make between any two places on Earth would take 42 minutes. It's a physics thing, apparently.

THE SINGULARITY

Forget AI. It may be a hot topic today, especially the generative stuff, but that will be viewed as a mere trifle if we ever witness the development of ASI. Artificial superintelligence – as in machines that can think, understand and reason in ways that surpass even the very brightest human minds – would be a key factor in the onset of what has been called technological singularity, or simply the singularity. This is the point at which technological growth will apparently become uncontrollable, irreversible and unstoppable. Cue an existential crisis for humankind unlike anything we've ever experienced before.

First discussed in the 1960s, the idea of technological singularity was brought into the wider public consciousness by 'The Singularity Is Near', a 2005 book by American futurist and inventor Ray Kurzweil. Kurzweil, who some of you will know best for the synth company he ran with Stevie Wonder in the 1980s, predicts the singularity for 2045. And the way things are going, you wouldn't want to bet against that.

GREY GOO

Where will it all end? Perhaps in a nuclear war, the Bulletin Of The Atomic Scientists having moved the hands of the world's Doomsday Clock to 90 seconds to midnight just three months ago, largely in response to Russia's invasion of Ukraine. Maybe in a devastating asteroid hit, with the biggest currently known threat to Earth, 101955 Bennu, on a 1-in-1,800 chance of crashing into the planet between 2178 and 2290. Then again, we might get lucky and make it through to the end of the solar system, which is 4.5 billion years away.

Another possibility is we'll find ourselves eaten alive by grey goo. A term coined by American nanotech pioneer K Eric Drexler in his 1986 book 'Engines Of Creation', grey goo is a nightmare doomsday scenario in which self-replicating nanobots consume everything in the world – that's every single atom on Earth – and the whole lot would be gone in a matter of hours. It would most likely begin with a rogue replicator, rogue either by accident or by design, and once the process has started, there would be no way of stopping it.

And the future really wasn't meant to be like that, was it?

100 TRACKS OF TOMORROW

Musicians have been writing and recording tracks about the future since pretty much forever, and we're marking our 100th issue with 100 of our favourite examples. They're mostly electronic, of course, but you might find some surprises along the way...

WORDS: IMOGEN BEBB, CLAIRE CARROLL, BOB FISCHER, CLAIRE FRANCIS, VELIMIR ILIC, ISAAK LEWIS-SMITH, PUSH, MARK ROLAND, MAT SMITH

PICTURES: AI GENERATED FROM TRACK TITLES

THE BEATLES

Tomorrow Never Knows

PARLOPHONE, 1966

The clue was in the title. The final track on 'Revolver', its lyrics were about the meaning of death, but the sonics gave the millions of Beatles fans a coruscating glimpse of the future. Their casual genius placed loops, field recordings, radical filtering and droning electronics into a three-minute explosion that sounds three-dimensional and vividly ahead of its time to this day.

NINETTE

Push A Little Button

PYE, 1966

"A gentle warning against accepting too much automation" is how composer Tony Hatch described this charming folk-pop single, sung by his teenage sister and featuring clunky tape loops. "The world's gone mad just pushing little buttons," she quips, bemoaning instant hot chocolate and impending nuclear annihilation. "'Cos one little man can push one little button / And – whoosh – goes you and me."

THE ROLLING STONES

2,000 Light Years From Home

DECCA, 1967

A single night doing porridge and Mick Jagger was already dreaming of interstellar travel. Reputedly written in Brixton Prison following a famously short-lived drugs conviction, it's a decidedly psychedelic trip to the cosmos. "See you on Aldebaran," he sings. "You're 2,000 light years from home." Hey, check your spaceship's mileometer, Mick. The star of Aldebaran is, in fact, only 65.2 light years from Earth.

PINK FLOYD

Astronomy Domine

EMI, 1967

Say what you like about Syd Barrett, he was impressively au fait with the moons of Uranus. The Farfisa-fuelled psych classic that opens 'The Piper At The Gates Of Dawn' includes disarmingly accurate predictions of "icy waters underground" on Oberon, Miranda and Titania, even though it would be another 20 years before this was confirmed by NASA's Voyager 2 space probe. Syd knew, man.

THE JIMI HENDRIX EXPERIENCE

1983... (A Merman I Should Turn To Be)

REPRISE, 1968

Anticipating a Soviet missile attack, Hendrix decided to escape "giant pencil and lipstick tube-shaped things" by heading for the sea to live on the submerged island of Atlantis. "My darling and I make love in the sand / To salute the last moment ever on dry land," he purrs. In 1968, even global thermonuclear conflict wasn't going to put a self-respecting rock star off a bit of how's-your-father.

ZAGER & EVANS

In The Year 2525 (Exordium & Terminus)

RCA, 1969

Nebraskan college mates Denny Zager and Rick Evans tapped into the post-hippy mood of 1969 with this account of the next 7,626 years of human history. Their predictions? Thought pills, robotic limbs, genetically modified babies and an 8510 AD Judgement Day instigated by a god who decides to "tear it down and start again". So have we learned our lessons? Doubtful. We're not even sure what "exordium" means yet.

SCOTT WALKER

30 Century Man

PHILIPS, 1969

Walker's pragmatically titled third album, 'Scott 3', left behind the supper clubs and wallowed in divine bedsit melancholy. This statement of acoustic intent sees our hero staving off a decision about his public image – "See the dwarfs and see the giants" – for at least another 100 years. "Play it cool and Saran wrap all you can," he offers. For the benefit of British readers, it's cling film.

BRUCE HAACK

Electric To Me Turn

COLUMBIA, 1970

A former instrument developer and children's music composer, Canadian Bruce Haack is rightly considered one of the major electronic pioneers. From 'The Electric Lucifer', a futuristic concept album about a war between heaven and hell, 'Electric To Me Turn' is an impish psych frolic fusing Moog riffs and Haack's vocoded voice to great effect. You can see why Stereolab and Add N To (X) paid due homage.

BLACK SABBATH

Iron Man

VERTIGO, 1970

Heavy metal? In Electronic Sound? You bet. Partly because of the ring modulator on Ozzy Osborne's intro, but mainly because this famously weighty track from Sabbath's 'Paranoid' album is the tale of a discarded robot, once the saviour of mankind, now wreaking revenge on ungrateful humans. The junkyards of the 22nd century are going to be terrifying places.

MARVIN GAYE

Mercy Mercy Me (The Ecology)

TAMLA, 1971

Lines like "Radiation underground and in the sky / Animals and birds who live nearby are dying" were a jarring departure from 'It Takes Two', but Gaye had been deeply affected by the letters his brother sent home from the Vietnam War. The resulting album, 'What's Going On', was written from the perspective of a disaffected veteran, and this ecological classic remains one of the most touchingly resigned headshakes in music.

DAVID BOWIE

Drive-In Saturday

RCA, 1973

Humans have forgotten how to make love, so they spend their Saturday nights watching old films to help them remember what to do. A "crash course for the ravers" indeed. A UK Top Three smash from 'Aladdin Sane', Bowie once said that this wonderfully atmospheric song was set in 2033, six decades after it was released. Or as we now know it, a mere 10 years away. Gulp.

SUN RA

Pathways To Unknown Worlds

SATURN, 1973

Sun Ra claimed to be an alien sent from Saturn to bring peace on Earth, but you won't find much of that on the title cut of his 'Pathways To Unknown Worlds' album. Backed by the 13-piece Astro Infinity Arkestra, this space-jazz epic captures the legendary Afrofuturist at his galaxy-trotting best, imitating extraterrestrial life forms through the sub-lunar squeals of his Minimoog and Yamaha YC-45D combo organ.

SPARKS

Never Turn Your Back On Mother Earth

ISLAND, 1974

A soaring baroque pop warning shot from the brothers Mael, addressing the fragile nature of Mother Earth. "When she's on her best behaviour / Don't be tempted by her favours" are prescient lyrics that have greater relevance today than they did in the 1970s. Later cover versions by Martin Gore and Associates frontman Billy Mackenzie elevate the song into even more atmospheric realms.

THE COSMIC JOKERS

Im Reich Der Magier

KOSMISCHE MUSIK, 1974

The Cosmic Jokers were a German improv supergroup (in the loosest sense) consisting of Manuel Göttsching, Klaus Schulze, Jürgen Dollase, Harald Grosskopf and Dieter Dierks. Featured on Kosmische Musik's 'Sci-Fi Party' label sampler, the woozy, proto-electronic 'Im Reich Der Magier' captures the Jokers at their transcendent, space-faring best, likely fuelled by LSD. Plug in, tune out and take a trip.

PARLIAMENT

Mothership Connection (Star Child)

CASABLANCA, 1975

With Bootsy Collins on bass and Bernie Worrell on a gazillion different keyboards, the swaggering funk of 'Mothership Connection' announced the arrival of George Clinton's messianic alien alter ego, Star Child. Parliament's live show at this point, which cost around $250,000, included a massive flying saucer that zipped above the audience on wires, all flashing lights, spitting fire and belching smoke.

KLAATU

Calling Occupants Of Interplanetary Craft

DAFFODIL, 1976

It's a reformed Beatles operating under an assumed name! OK, that's not true. Klaatu were a delightful Canadian pop-prog trio, and this epic single begged "interstellar policemen" to establish contact with any aliens out there and put the human race back on the path to righteousness. The galactic peace corps remain conspicuous by their absence, but this earnest plea did at least give The Carpenters a global hit in 1977.

BE-BOP DELUXE

Life In The Air-Age

HARVEST, 1976

This sharp art-rock track from Bill Nelson's outfit centres on a forlorn time-traveller marooned in a steampunk landscape. "My world is not like yours / I come from somewhere long ago / I'd dearly love to go back to my own time," mourns Nelson. Only his beautifully mellifluous guitars provide respite from a fate "grim enough to make a robot cry".

CERRONE

Supernature

ATLANTIC, 1977

What was French disco producer Cerrone expecting when he asked an unknown London singer to provide a handful of English lyrics? Possibly not a stark warning about intensive agricultural practices awakening swarms of mutant beasties determined to exact "sweet revenge" on mankind. Such was Lene Lovich's uncredited contribution to this hit, as "science opened up the door" to one of the bleakest floorfillers of the 1970s.

THE ALAN PARSONS PROJECT

I Robot

ARISTA, 1977

The synth-propelled title track of Parsons' full-album tribute to American sci-fi writer Isaac Asimov. With the English Chorale Choir providing alarming, wordless vocals, it's the gateway to a record decidedly uncertain about the merits of artificial intelligence. As the sleeve notes warn, "His brief dominance of this planet will probably end, because man tried to create robot in his own image."

HAWKWIND

Spirit Of The Age

CHARISMA, 1977

Cryonics, cloning and intergalactic travel are among the themes of 'Spirit Of The Age', the opening track of 'Quark, Strangeness And Charm', Hawkwind's most overtly electronic album, and an epic sci-fi saga of love and loss across space and time. "I would've liked you to have been deep frozen too," begins Robert Calvert. "And waiting still as fresh in your flesh for my return to Earth…"

THE NORMAL

TVOD

MUTE, 1978

The first single on Mute, no less. Propelled by a throbbing, strangely chipper MiniKorg 700S backbeat – think punky Kraftwerk – Daniel Miller envisages a grisly scenario where humans overdose on the gogglebox. "I don't need a TV screen / I just stick the aerial into my skin / Let the signal run through my veins," he intones, predicting the present-day obsession with screens and smartphones.

JOY DIVISION

Digital

FACTORY, 1978

If you've ever doubted how far ahead of their time Joy Division were, consider the fact that their first release was a track called 'Digital'. One of two contributions to the double seven-inch 'A Factory Sample', the title was apparently a reference to the then still largely unknown digital technology that producer Martin Hannett used to hone the band's early sound.

DEE D JACKSON

Automatic Lover

MERCURY, 1978

Dystopian disco! "He's programmed to receive automatic satisfaction," sings Ms Jackson, who dressed up in blue lurex and cavorted with a low-budget C-3PO on 'Top Of The Pops'. For all of that, this unlikely UK Top Five hit was a genuinely dark rumination on futuristic, depersonalised, machine-assisted sex. Vibrators have feelings too, you know.

THE HUMAN LEAGUE

Circus Of Death

FAST PRODUCT, 1978

Bowie said they were "the sound of the future" and the B-side of the League's 'Being Boiled' single is an arty, witty and ominous statement of intent. Analogue electronics swirl menacingly as Phil Oakey sings about a nefarious clown administering a poisonous drug to the masses, hell-bent on wiping out civilisation. Hammering home the doomy prognosis, the final verse is "a shortwave radio message from the last man on Earth".

YELLOW MAGIC ORCHESTRA

Behind The Mask

ALFA, 1979

Tokyo, 1979. The mega city of neon and population density was alive with the sound of the synth. Masters of the machine were Yellow Magic Orchestra, though the English lyrics of 'Behind The Mask' were written by British poet Chris Mosdell. "I was talking about a very impersonal, socially controlled society, a future technological era, and the mask represented that immobile, unemotional state," said Mosdell in 2011.

GARY NUMAN

Metal

BEGGARS BANQUET, 1979

Numan's fixation on all things android was, as we now know, partly informed by his own sense of disconnection from human warmth. 'Metal', synth banger that it is, imagines a confused android with a Mallory heart (Mallory subsequently became Duracell) and is a sci-fi vision of the ethical and philosophical issues we're only now beginning to confront, as AI increasingly infiltrates our lives.

THE BUGGLES

Video Killed The Radio Star

ISLAND, 1979

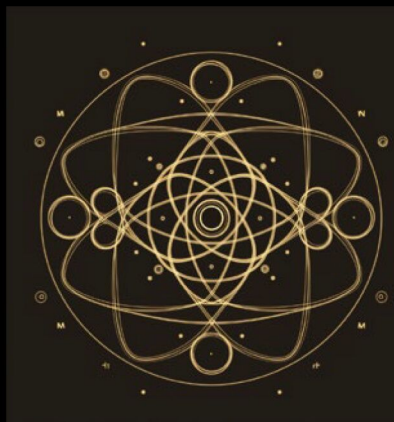
On the surface, this deliciously whimsical track references a very specific period in popular culture, but at its core is the prospect of a time when technology infiltrates every aspect of ordinary life. "It came from this idea that technology was on the verge of changing everything," said Trevor Horn, the song's co-writer and vocalist in 2011. "There was a shift coming."

KATE BUSH

Breathing

EMI, 1980

It's scary stuff – "After the blast / Chips of plutonium are twinkling in every lung" – and then some. With the Soviet invasion of Afghanistan reigniting the dormant Cold War, 'Breathing' was in the vanguard of a slew of 1980s nuclear-powered pop hits. But only one took the viewpoint of an unborn foetus contemplating the effect of radioactive fallout being absorbed through its mother's womb. Number 16 in the UK charts, everyone.



BLONDIE

Atomic

CHRYSALIS, 1980

Encompassing the jittery, paranoiac energy of the Cold War years and with singularly soaring powerhouse vocals from Debbie Harry, 'Atomic' is widely viewed as one of Blondie's most treasured songs. The band's biggest-selling single in the UK, it's a rapturous fusion of disco, new wave, and jangly country and western guitars. An evergreen floorfiller that speaks to a strangely joyful dystopian future.

MICHAEL BUNDT

The March Of The Martians

BLUBBER LIPS, 1980

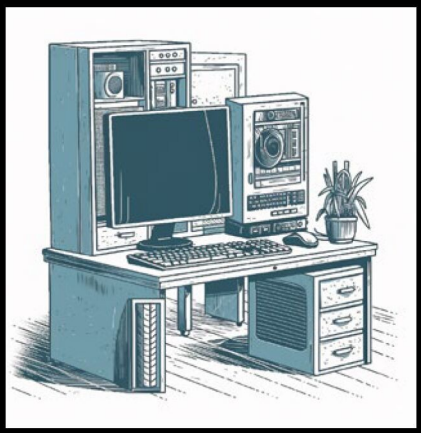
Nine minutes of pure, unalloyed escapism, as former progger Bundt cuts loose with a thrilling blast of galactic futurism that draws on krautrock, Berlin School and sci-fi tropes. Taken from the German's acclaimed 'Electri City' album, it vividly depicts hordes of armoured aliens on parade. Check out Bundt's 'Just Landed Cosmic Kid' LP from 1977 too, another wigged-out journey into the outer reaches of space.

KRAFTWERK

Home Computer

EMI, 1981

A highlight of 'Computer World' and another perfectly realised artistic statement from the Kling Klang Mysterons. Way back in 1981, Kraftwerk's almost childlike electronic poems about humans and computers living together sounded like sci-fi comedy. By 1990, we all realised they'd nailed it. "I program my home computer / Beam myself into the future." You sure did, Ralf.



LAURIE ANDERSON

O Superman

WARNER BROTHERS, 1981

Sounding out of this world, yet nonetheless extraordinarily human, Anderson's surprise hit from her seminal 'Big Science' album struck a nerve for many. The eight-minute-plus epic reached Number Two in the UK charts and is certainly as good as anything Bowie ever wrote in terms of extraterrestrial interrogations. Pivotal experimental electronica and a moving meditation on technology and communication.

HEAVEN 17

We're Going To Live For A Very Long Time

VIRGIN, 1981

Martyn Ware and co poured funk, soul and even glam into the machine-like rhythms of 'Penthouse And Pavement'. With its resounding synth rumble, this satirical closing track – about religious fanaticism, going to heaven and "talking to God on the party line" – ends with an interminable groove that repeats "for a very long time" on a loop. See what they did there?

A FLOCK OF SEAGULLS

I Ran (So Far Away)

JIVE, 1982

Perhaps the greatest song ever written about meeting a beautiful girl and then being abducted by aliens. AFOS singer Mike Score hoped 'I Ran' would evoke sci-fi films like 'Close Encounters Of The Third Kind', but the track found little success in the group's native UK. Maybe we just weren't ready for Score's cosmic haircut. It did give them a Number One in Australia, though.

MIKE BATT

Love Makes You Crazy

EPIC, 1982

Boldly setting aside all things Womble, Batt went full-on Orwellian synthpop with this single from his 'Zero Zero' album, an electronic rock opera set in a dystopian near future where human emotion is considered a disease. The lyrics say it all: "I was reading in a history book / Before the seventh war / They used to have a thing that they called love / That we don't have any more."

THOMAS DOLBY

Airwaves

VENICE IN PERIL, 1982

It's entirely appropriate that a man named after noise reduction techniques should be so troubled by incessant multimedia babble. "Do we only feed the airwaves?" ponders Dolby, anticipating the rise of Twitter 30 years on. Even in 1982, information overload was giving him psychosomatic symptoms. "I itch all over, let me sleep," he complains, although there's seemingly still no cure for "the dampness of the wind". Quite.

NEIL YOUNG

Computer Age

GEFFEN, 1982

Young's 'Trans' album is perhaps the greatest mass pissing-off of bearded men in plaid shirts ever. But the bold synthpop anthems were inspired by the technology Young used to communicate with his severely disabled son, and this pivotal track has both heartbreak and hope beneath its glacial surface: "I need you / To let me know that there's a heartbeat / Let it pound and pound / And I'll be flying like a free bird."

ORCHESTRAL MANOEUVRES IN THE DARK

Genetic Engineering

VIRGIN, 1983

A positive spin on a biotechnological future with this single from OMD, who cleverly make use of a typewriter and a Speak & Spell children's toy in the process. It barely scraped the UK Top 20, but should have been massive. As should its controversial parent album, 'Dazzle Ships', which was so unnerving and eccentric that it lost the band 90 per cent of their fans on release.

HERBIE HANCOCK

Future Shock

CBS, 1983

Jazz icon Herbie Hancock made the future sound super-funky with this innovative, proto-hip hop remake of Curtis Mayfield's 1973 hit single, the lyrics addressing both environmental destruction and societal inequality. Hancock's 'Future Shock' album, which also included 'Rockit', marked his first foray into electro-funk, his instruments of choice including the Fairlight CMI.

DEPECHE MODE

Two Minute Warning

MUTE, 1983

Depeche Mode tackled some big issues on 'Construction Time Again', including everyone's favourite heartwarming topic – imminent nuclear destruction. Written by band newcomer Alan Wilder, 'Two Minute Warning' had a poppy feel, but it was deadly serious, with depressing lyrics sung by Dave Gahan in an awestruck tone over a slick synth sequence.

FRANKIE GOES TO HOLLYWOOD

Two Tribes

ZTT, 1984

Frankie's follow-up to 'Relax' found singer Holly Johnson protesting at the futility of war amid the 1980s arms race between the USA and the USSR. Produced by Trevor Horn and using musical elements sampled from both America and Russia, 'Two Tribes' is positively gleeful as its relentless slap bass rhythm sends the track careering towards armageddon.

ULTRAVOX

Dancing With Tears In My Eyes

CHRYSALIS, 1984

Fears of an irreversible escalation of nuclear tensions were clearly omnipresent in 1980s synthpop, probably reflecting a sense of existential panic in the wider world. Framed by a gloriously muted euphoria, Ultravox frontman Midge Ure leads a final dance with his loved one on the eve of annihilation, his delivery full of pain, loss and resignation.

MODEL 500

No UFOs

METROPLEX, 1985

This is where techno starts. The first Model 500 release from Detroit legend Juan Atkins, who has often cited the influence of writers such as Arthur C Clarke, Isaac Asimov and Alvin Toffler, this pulsating track cautions against believing everything you're told: "They say, 'There is no hope' / They say, 'No UFOs' / Why is no head held high? / Maybe you'll see them fly". Wise up and eyes up, people.

PHUTURE

We Are Phuture

TRAX, 1988

Having kick-started the acid house revolution with their seminal 'Acid Tracks' the previous year, the Chicago outfit that put the "Ph" in "Uture" kept the squelches wringing wet, the beats big and booming, and the vibe at fever pitch with the equally epic "We Are Phuture". The lyrics mainly consist of the word "Phuture" repeated, but rocket ships and laser guns also get a look in.

FINGERS INC

Distant Planet

JACK TRAX, 1988

We're staying in Chicago for this next one, a typically silky and soulful house track from Larry Heard and his Fingers Inc buddies Robert Owens and Ron Wilson. 'Distant Planet', a place of peace, love and happiness in a far-off galaxy, was a highlight of 'Another Side', the trio's only album and the first full-length long-player by a house music artist.

CLOCK DVA

The Hacker

WAX TRAX!, 1988

The final track on Clock DVA's 'Buried Dreams' album, 'The Hacker' feels like a trip down a modem cable into the darkest recesses of your desktop PC. Replete with a conspiratorial vocal from Adi Newton decrying "mathematical terrorists", it is violent, prescient, and a far cry from the depiction of cheeky teenage computer programmers in films like 'Weird Science'.

TALKING HEADS

(Nothing But) Flowers

WARNER BROTHERS, 1988

Wistful and nostalgic, with a jangly Johnny Marr guitar riff and African percussion, '(Nothing But) Flowers' has Talking Heads imagining a world in which all of modern life has returned to nature. David Byrne considers the loss of fast-food joints and shopping malls, while also anticipating social media with dream-like lyrics about pretending to be a slogan-filled billboard.

DIGITAL UNDERGROUND

Packet Man

TOMMY BOY, 1990

From DU's 'Sex Packets' concept album, the world probably wasn't ready for the ultra-funky hip hop group's little packets of sex pills in 1990. "See the girl on the cover? / You black out and she becomes your lover," claimed the Packet Man, aka rapper Shock G, who was selling "guy packets" and "orgy packets" too. The closest thing we had to virtual reality back then.

MC 900 FT JESUS

UFOs Are Real

NETTWERK, 1990

It's hard to discern exactly what this driving electro-distorto rap track is getting at. Mr Jesus himself, Dallas rhymer Mark Griffin, wasn't giving much away. From his sample-heavy 'Hell With The Lid Off' debut album, if this is the soundtrack to an imminent invasion by alien life forms from other planets, then we're in for a good time.

MASSIVE ATTACK

Hymn Of The Big Wheel

VIRGIN, 1991

One of the defining voices of millennial futurism in electronic music, Massive Attack closed 'Blue Lines' with this soulful, dubby vision of a grinding, post-industrial world. True to form, the band offers a melancholy portrait of a fractured new world, only to disrupt the bleakness with soaring lyrics – performed by Horace Andy – that hint at unity and hope.

BRIAN ENO

Fractal Zoom

ALL SAINTS, 1992

Eno hasn't written many tracks on the subject of the future, but he has given us plenty of forward-thinking music techniques and concepts over the years. 'Fractal Zoom', which opens his 'Nerve Net' album, is a good example. The reference to a fractal, a never-ending geometric pattern often associated with chaos theory, reflects the tirelessly propulsive feel of the track.

DREXCIYA

Sea Quake

SHOCKWAVE, 1992

With enough bleeps, squelches and punchy 808s to cause a tidal wave, it's no wonder Drexciya called this one 'Sea Quake'. The opening track of their first release, the 'Deep Sea Dweller' EP, the OG Detroit acid electro duo James Stinson and Gerald Donald were on a mission to craft new musical realms – and subaquatic ones, with their Afrofuturist water world influenced by the history and horror of the transatlantic slave trade.

LEONARD COHEN

The Future

COLUMBIA, 1992

For the weathered Canadian troubadour, the road ahead was anything but bright. Lyrics such as "The blizzard of the world / Has crossed the threshold" and "You feel the devil's riding crop" don't bode well. Singing in his trademark drawl and framed by jaunty organ and guitar, Cohen is suddenly consumed by lust as he croons about wanting "crack and anal sex" – a novel way of dealing with the coming apocalypse.

THE FUTURE SOUND OF LONDON

Lifeforms

VIRGIN, 1994

After 1992's rave debut 'Accelerator', Brian Dougans and Garry Cobain came down a gear or two with the ambient psychedelics of 'Lifeforms', an album that dabbles in cybernetics and AI. On both the title track and the 40-minute EP derived from it, FSOL's immersive sounds are heavily influenced by kosmische, the music verdant, textural and unearthly, like being blissfully suspended in zero gravity with not a care in the world.

A GUY CALLED GERALD

Voodoo Rage

JUICE BOX, 1995

From 'Voodoo Ray' to 'Voodoo Rage', Gerald gives his classic acid house track a radical overhaul for 'Black Secret Technology', his highly praised drum 'n' bass album. The record explores our susceptibility to subliminal messaging via TV and radio, with 'Voodoo Rage' warped and hobbled by repeated bursts of effects and interference.

LTJ BUKEM

Horizons

LOOKING GOOD, 1995

If there's one track that made 90s clubbers fall in love with drum 'n' bass, it was probably 'Horizons', and Bukem's jazzy, rhythmic take on the genre is as transcendent now as it was back then. Vocal samples spilling lines such as "Each new hour holds new chances / For new beginnings" only add to its vista-expanding charms.

PULP

Disco 2000

ISLAND, 1995

Jarvis and the gang hit the dancefloor with a divine homage to a year that, even in 1995, seemed impossibly futuristic. "Won't it be strange when we're all fully grown?" he muses, turning real-life adolescent longing into a singalong disco chorus with effortless aplomb. As he later revealed, "The only bit that isn't true is the woodchip wallpaper".

DJ SPOOKY

The Terran Invasion Of Alpha Centauri Year 2794

ASPHODEL, 1996

Now that's a far-sighted title. Add in the fact that this intensely otherworldly illbient cut from Spooky's 'Songs Of A Dead Dreamer' album is built from samples of Erik Satie ('Gymnopédie No 1') and Barry White ('I'm Gonna Love You Just A Little More Baby') and the result is pretty special. It's going to sound as fresh in 771 years time as it did back in 1996.

SETI

String Theory

INCOMING!, 1996

The various early versions of string theory had been unified into a single hypothesis just months before Andrew Lagowski included this majestic ambient beauty of a track on 'The Geometry Of The Night', his second SETI album. Lagowski's music has always been heavily influenced by science – the name SETI comes from the real-life international body, Search For Extraterrestrial Intelligence.

BJÖRK

Jóga

ONE LITTLE INDIAN, 1997

From Björk's 'Homogenic' album, 'Jóga' is dedicated to the Icelandic superstar's best friend. But alongside the baroque string arrangements and volcanic proto-dubstep beats, the lyrics are a lament for a world locked in a downward spiral of cataclysmic environmental breakdown. The occasional ambiguity – "State of emergency / Is where I want to be" – is both peculiar and curious.

DURAN DURAN

Electric Barbarella

EMI, 1997

Simon Le Bon, Nick Rhodes and Warren Cuccurullo extol the virtues of sex with robots on this stylish electro ditty. Featuring a killer bridge and some surprisingly droll lyrics from Le Bon – "Emotionless and cold as ice / All of the things I like" – the track is also said to have been the first ever single available for digital download and purchase.

SPEEDY J

As The Bubble Expands

NOVAMUTE, 1997

Bubble universes? Spacetime foam? Oh yes. For now, though, let's focus on the fact that the last track of 'Public Energy No 1', the third studio set from Dutch techno maverick Speedy J, begins with a single bell and grinds to a halt in a maelstrom of percussion. The history of everything, from start to finish, in five minutes flat. Well, nine minutes if you include the insect noises that creep in once the percussion has collapsed in on itself.

COLDCUT & HEXSTATIC

Timber

NINJA TUNE, 1998

This breakbeat classic sees Coldcut and Hexstatic teaming up to sample a Greenpeace film about illegal logging, subsequently transforming it into an audiovisual dance menagerie complete with the sound of axes, chainsaws, falling trees and more. It's a rare breed, a protest song without lyrics, that lets context and suggestion do the talking.

OUTKAST

Synthesizer

LAFACE, 1998

A gem from their 'Aquemini' album, Atlanta rappers Andre 3000 and Big Boi deliver an ominous prophecy about romance in the digital age. Over the smuttiest southern beat and backing vocals from George Clinton, the pair throw dice over the prospect of silicone-adorned humans (check), "Cybersexy Wendy web-walking in the nude" (check and check) and salty partners producing clones of their exes (coming soon).

ADD N TO (X)

Metal Fingers In My Body

MUTE, 1999

With an armoury of defunct vintage gear at their disposal, Add N To (X) were electronic collagists of the highest order. Here, inspired by an illustration from a 1960s French adult magazine, they explore the racy world of human/robot sex via a fuzzy, vocoded synth-rock groove and a saucy animated video. It's firmly tongue-in-cheek, naturally, but google at your peril.

GOLDFRAPP

Utopia

MUTE, 2000

Goldfrapp's second single, 'Utopia', is outwardly an ethereal and dreamy electro-symphonic track filled with strings, languid Moog solos and vocalist Alison at her most haunting. Dig a little deeper and its beatific textures are wrapped around lyrics likening the new millennium's obsession with genetic engineering to fascism. Which, of course, isn't remotely utopian.

DELTRON 3030

3030

75 ARK, 2000

The crown jewel of '3030', a rap opera concept album by the hip hop supergroup fronted by Del The Funky Homosapien and featuring turntablist Kid Koala and producer Dan The Automator. Sampling classical composer William Sheller, the track outlines the record's storyline, set 1,000 years ahead, and introduces us to Del's protagonist, an ex-mech soldier turned righteous mercenary fighting intergalactic corporations.

RADIOHEAD

Idioteque

PARLOPHONE, 2000

'Idioteque', Radiohead's acclaimed chaotic masterpiece, is the glue that holds 'Kid A' together and marks a pivotal moment in the band's trajectory. Thom Yorke's sardonic and febrile lyrics reverberate through the glitchy haze of synths and samples, alluding to a desolate, post-disaster wasteland. A desperate grasping at the persistence of life through ecological and social collapse.

TODD RUNDGREN

Future

SANCTUARY, 2004

"I'm supposed to drive a flying car / I'm supposed to have a house on Mars," grumbles Rundgren on this standout track from his 'Liars' album. But while he was nostalgic for the idealistic optimism of his 1960s youth, his music was decidedly forward-thinking. He remains the only veteran songsmith to have warbled wistfully about the 1964 World's Fair, accompanied by drum 'n' bass beats.

OPPENHEIMER ANALYSIS

Science

OPPENHEIMER ANALYSIS, 2005

Written in the early 1980s, but not released until 2005, this synthwave classic by Cold War obsessives Andy Oppenheimer and Martin Lloyd sets out the numerous ethical dilemmas surrounding the West's thirst for relentless technological advancement. "What shall I make you / A baby or a bomb?" sings Oppenheimer, who nowadays happens to be an expert in counterterrorism and the mitigation of weapons of mass destruction.

GORILLAZ

Fire Coming Out Of The Monkey's Head

EMI, 2005

The Happy Folk live at the foot of a volcanic mountain called Monkey, appeasing it with rare jewels. The corporate bastards that are The Strange Folk come along to mine the jewels, causing Monkey to erupt and destroy the whole bloody lot of them. World-weary vocals from Damon Albarn, plus a mystical narration from Dennis Hopper, conjure a supremely inventive ecological warning.

THE FLAMING LIPS

Time Travel?? Yes!!

WARNER BROTHERS, 2006

From The Flaming Lips' 'It Overtakes Me' EP, 'Time Travel?? Yes!!' was a collaboration with American actor Steve Burns. Over a bed of psychedelic, loopy synths, Burns delivers a lysergic exposition on time travel that's a mere "turn on, tune in, drop out" short of a Timothy Leary speech. The punchline? Time travel is already possible (transcendentally), man.

THE MIGHTY BOOSH

Future Sailors

BBC, 2007

The greatest song about the future ever also just happens to be the greatest song about sailors ever. As Howard Moon and Vince Noir put it: "Future sailors / We're future sailors / Electronic castaways / Digital stowaways / Cyborg seadog / Tell me what you dream of / Future sailors / Oh yeah / Robot starfish / Nylon admiral…"

CHAIRLIFT

Planet Health

KANINE, 2008

Caroline Polachek appears to resurrect Nico's ghost on this track from Chairlift's euphorically titled 'Does You Inspire You?' album, her dreamy vocals painting a picture of a 70s-style synthpop paradise tinged with melancholia. The unsettling lyrics, derived from public health messages fed to schoolkids, shimmer hazily across languid guitar grooves. We're all feeling great on Planet Health… until we're not.

MGMT

Future Reflections

COLUMBIA, 2008

These psych-pop heavyweights round off their debut album with a track for a post-apocalyptic beach holiday. More understated than the other tracks on 'Oracular Spectacular', 'Future Reflections' nevertheless captures the youthful energy for which MGMT are known and evokes the feeling of running joyfully into a warm sea, albeit at the end of the world.

RÖYKSOPP

The Girl And The Robot

ASTRALWERKS, 2009

Röyksopp weave a phantasmagorical tale of a lonely girl in love with a robot on this whacking great slice of pulsing electropop. Swedish powerhouse Robyn drives the track, her suitably anguished vocals giving credence to the idea of a time when humans and robots live in more than just harmony. Rather you than us, Robyn.

THE LIMOUSINES

Very Busy People

UNIVERSAL REPUBLIC, 2009

"We'll stay up late making mix tapes / Photoshopping pictures of ourselves / While we masturbate to these pixelated videos / Of strangers fucking themselves." Well, we all need a hobby. Californian duo Eric Victorino and Giovanni Giusti bemoan the addictive, time-sapping ubiquity of "the bloody internet" on this millennial synthpop anthem, earning bonus points for mentioning both 'Donnie Darko' and, erm, wank socks.

DJ SHADOW

Scale It Back

ISLAND, 2011

Shadow was residing in Silicon Valley when he penned 'Scale It Back', a track pondering how technology is turning us into zombies. "I swear I solved your life," sings guest vocalist Yukimi Nagano from Little Dragon. It's made all the more interesting by the enduring shadow (ahem) of his 1996 album, 'Endtroducing.....', where the potent use of sampling warped the traditional notions of music production.

DAFT PUNK

The Game Of Love

COLUMBIA, 2013

'The Game Of Love' appears on 'Random Access Memories', Daft Punk's final studio album, the title of which suggests equivalences between a computer and the human mind. It's a downtempo and soulful love song, the vocoder vocals conveying what Thomas Bangalter described to the French magazine Le Nouvel Observateur as "an emotion of something that is not human but tries to be".

JEFF MILLS

An Alternative To Earth

AXIS, 2014

Detroit techno pioneer Jeff Mills has crafted countless future-themed records over the years. The hypnotic 'An Alternative To Earth', a key element of his 'Chronicles Of Possible Worlds' project, begins with Mills talking about the search for a new planet for mankind to migrate to. Something like Kepler-452b, for instance, also known as Earth 2.0, which was discovered by NASA the year after this track came out.

STEVE AOKI

Transcendence

ULTRA, 2014

The super-shiny 'Transcendence' opens the first of Aoki's four 'Neon Future' albums and features renowned futurist Ray Kurzweil explaining his wonderfully optimistic vision of what lies ahead of us. "We're going to transcend and overcome the limitations that have plagued us for thousands of years," he declares. "We're going to have radical life expansion, not just radical life extension". We can all dig that, right?

ST VINCENT

Digital Witness

LOMA VISTA, 2014

"If I can't show it / If you can't see me / What's the point of doing anything?" sings Anne Erin Clark, aka American art-pop innovator St Vincent. The shiny and synthetic textures of 'Digital Witness', from her eponymous fourth album, are like a mirror, and one that she holds up to the increasingly narcissistic side of internet culture.

IMOGEN HEAP

Me The Machine

MEGAPHONIC, 2014

As the first song to be produced with MiMU Gloves, the pioneering gestural musical instrument created and co-developed by Imogen Heap, the very existence of 'Me The Machine' is futuristic. Add in the fact that the song is about a machine who is desperate to become human and you've got yourself a slightly surreal, achingly beautiful future fest.

JOHN FOXX

Beautiful Ghost

METAMATIC, 2015

One of the most elegant and moving pieces on 'London Overgrown', an ambient project based around a very clear concept – as is obvious from the title and the image of St Paul's Cathedral smothered in a blanket of green vegetation on the cover of the record. The idea of nature taking over abandoned cities is a theme that Foxx has returned to many times over the years.

YACHT

I Thought The Future Would Be Cooler

DOWNTOWN, 2015

Talk about lowered expectations. While the teenage Todd Rundgren felt cheated out of a luxury home on Mars, Portland outfit YACHT merely sought salvation from "death by remote control and unrestricted sidearms". "Got my broken heart / I got it sold right back to me / By an algorithmic social entity," sighs frontwoman Claire L Evans. These days, even heartache comes packaged in promoted tweets.

HOLLY HERNDON

Home

4AD, 2015

A haunting, melodious sound collage from 'Platform', the second album by American composer Herndon and reportedly the first by anyone to include a track composed specifically to trigger ASMR. 'Home' blends samples with lilting choral vocals, the lyrics suggesting the paranoid loneliness of living under an oppressive regime, littered with broken computer screens and disquieting sentient technology.

MOOR MOTHER

Chain Gang Quantum Blues

DON GIOVANNI, 2016

Juxtaposing a sample of a singing chain gang against howling electro fuzz, this standout track on Moor Mother's 'Fetish Bones' LP distills an important tenet of Afrofuturism – that time moves cyclically, spiralling through the past, present and future all at once. The Philadelphian producer-poet's activities in the years since include holding a residency at CERN in Switzerland.

THE RADIOPHONIC WORKSHOP

Some Hope Of Land

ROOM 13, 2017

Britain's official Sound Of The Future for 60 years and counting! Who had money on The Radiophonic Workshop re-assembling for a collection of ambient improvisations inspired by Francis Bacon's unfinished 1626 novel 'New Atlantis'? This 25-minute epic is the lynchpin of 'Burials In Several Earths' and a glimmering reflection of Bacon's enlightened future idyll of "dignity and splendour, piety and public spirit".

HANNAH PEEL

The Planet Of Passed Souls

MY OWN PLEASURE, 2017

Peel's album, 'Mary Casio: Journey To Cassiopeia', combines elegiac synths with stirring brass arrangements to depict an octogenarian Barnsley stargazer's trip to the outer reaches of the universe. Pitched halfway between Kubrick's '2001' and the abandoned pithead of Grimethorpe colliery, this supremely touching finale adds the angelic vocals of Peel's own grandfather, captured as a choirboy in 1928.

GRIMES

We Appreciate Power

4AD, 2018

This techno-industrial foot-stomper is one of Grimes' many forays into transhumanism and AI. It was reportedly conceived as a response to Roko's Basilisk, a thought experiment which suggests an artificial superintelligence might turn malevolent towards anybody who doesn't support its advancement. A tweet about Roko's Basilisk is what first brought Grimes and Elon Musk together.

LADYTRON

The Island

LADYTRON MUSIC, 2018

"We are sirens of the apocalypse," claims Helen Marnie on this dark but uptempo single from Ladytron's self-titled comeback album. "We are savages giving you poison lips." Safe to say, her vision of the world to come isn't altogether happy. "The Island" is a desolate reference to her homeland, an increasingly marginalised Scotland, adding a different spin to the lines "Seeking out our departure / Seeking out our heavenly future."

CHILDISH GAMBINO

Feels Like Summer

WOLF & ROTHSTEIN, 2018

No one injects chart hits with shrewd social commentary quite like Donald Glover. The gorgeous R&B swoon of 'Feels Like Summer' imitates just another sunshine ditty, yet Glover's lyrics describe a world that's getting too hot to live in, while our eyes stay glued to showbiz gossip. Will we still be talking about what Kanye said last night when our homes are under water?

CHROMATICS

Time Rider

ITALIANS DO IT BETTER, 2019

You don't need a time machine to travel into the past and the future. You just need music. That's the premise of 'Time Rider', conveyed by vocalist Ruth Radelet in a comfortably numb style over brittle synths and crisp beats. The result oscillates between hope, nostalgia, yesterday and tomorrow, all in the space of four pristine electropop minutes.

FOALS

Exits

TRANSGRESSIVE, 2019

'Exits' imagines a planet of subterranean cities, where every move is scrutinised and all the routes to above ground are locked. It's a bleak and oppressive prospect improbably expressed as a tight, defiant, stadium-friendly song – the converse of how something so grim and savage ought to sound and a reflection of the lyrics, which detail a world turned inside out.

KELLY LEE OWENS

Melt!

SMALLTOWN SUPERSOUND, 2020

A techno banger on Owens' otherwise dreamy 'Inner Song' album, 'Melt!' fuses heavy beats with samples of a thawing glacier and people skating on ice. It's an interesting juxtaposition and one which manages to demonstrate the frenetic pace of environmental jeopardy, while also giving us the space for hedonistic release.

THE AVALANCHES

Wherever You Go

MODULAR, 2020

The opening moments of 'Wherever You Go' borrow extensively from recorded messages on the two "Golden Records", the Carl Sagan-curated discs that are currently deep in interstellar space on the Voyager 1 and 2 probes. Featuring Neneh Cherry and Jamie xx, this is a cheery greeting to the citizens of the universe wrapped up in a sampledelic and psychedelic sprawl.

GCOM

XO Transmission #1

!K7, 2021

Tom Middleton uses the filmic soundscapes of his Global Communication work with Mark Pritchard as a launchpad for 'E2-XO', his GCOM album . Inspired by "humankind's impact on the climate, conscious AI, and the search for habitable exoplanets", it's a starry-eyed ride save for the left-field turn of 'XO Transmission #1'. The crunching metallic distortions sound like Aphex and Squarepusher engaged in sonic combat.

KUEDO

Infinite Window

BRAINFEEDER, 2022

Kuedo, aka Jamie Teasdale, puts his palette of opulent 808 states and Tangerine Dream-like hues to great use on the title track of his most recent album. Exploring the notion that the future is inextricably linked with the past, this harks back to Vangelis' emotive, neo-noir 'Blade Runner' score, interspersed with skittering arpeggios that evoke the innate tension and drama of a sci-fi shoot-'em-up.

FUTURE CONDITIONAL

Isotech

SECOND LANGUAGE, 2022

Cold, dry, dark, robotic, fascinating. "The kick is numb / The snare is dead," intones vocalist Mücha. The title cut of Future Conditional's 'Isotech' album is exactly as you might expect from a track that started out with FC's Glen Johnson imagining a club where androids go to dance and humans are barred from entry. No trainers, of course.

PETER GABRIEL

Panopticom

REAL WORLD, 2023

The Panopticom? An "infinitely expandable accessible data globe" intended to log climate catastrophes and human rights violations. Or, as Gabriel puts it, "the dark, the mal-intentioned and the dangerous". He's keen to put the plan into action, and this strident single is a blueprint. "We got witness on the ground / Takin' in the evidence," he sings, wagging a finger at the encroaching darkness of the 21st century.

THE APPLIANCE OF SCIENCE

As an early adopter of the iconic Fairlight CMI digital workstation in the early 1980s, pioneering musician and producer **Thomas Dolby** is no stranger to technological advancement. He reflects on a career full of innovation and muses on how the future of sound may benefit us all

WORDS: VELIMIR ILIC

AI COMMAND "THE APPLIANCE OF SCIENCE"

"I've always liked things that are very modern and futuristic," says Thomas Dolby, calling from his home in Baltimore. Wearing a fetching blue beanie, he looks far younger than his 64 years.

"The technology I play with is mostly forward-looking and hasn't yet been fully explored or developed. I have a soft spot for obsolete ideas of the future, if you like."

As a revered new wave musician, producer and tech innovator, Dolby has been at the sharp edge of sound pretty much since he first started dabbling in electronics back in the mid-1970s. Look up old clips of his live performances and he's inevitably surrounded by banks of synths and monitors, occasionally donning steampunk goggles and aviator headgear just for the sheer hell of it.

But, as we've seen over the years, there's no gimmickry here. Dolby has always been ahead of the curve, a restless visionary striving to discover and master emerging tech before anyone else, never happier than when he's tinkering with shiny new kit.

"I'm a performer and impresario, a show-off," he declares. "I want to create something that will make people's jaws drop. So it's not tinkering for its own sake. I like playing with the tools and finding something interesting to do with them, but then this artistic picture emerges of something that I have to get out there and give to the world."

If you listen to Dolby's early 1980s singles, references to a technology-driven world in 'Airwaves' ("Control has enabled the abandoned wires again") and to embracing the future in 'Windpower' ("Etch out a future of your own design") set out his stall, influenced by science fiction writers such as Jules Verne and HG Wells. Themes of technology also underpin his debut 1982 album, 'The Golden Age Of Wireless'. But it's just the tip of the iceberg.

Add into the equation his stints as a filmmaker, music director for the TED conferences, author (his acclaimed memoir, 'The Speed Of Sound', is a proper page-turner), university professor and AR/VR expert, plus his previous work with the likes of David Bowie, Stevie Wonder, Herbie Hancock and George Clinton, and you soon begin to realise this Zelig-like figure has crammed a lot into a 42-year career.

A heck of a lot.

Settle in. This promises to be quite the story.

Born Thomas Morgan Robertson, he was dubbed "Dolby" (as in Dolby Laboratories) due to his incessant fiddling around with tapes and keyboards. It was this passion for music and tech that led him to study at the Royal College of Music in London, but his scope soon widened into electronic realms.

"When I first got interested in keyboards, you could go to the West End in London, find a music shop and try things out – a Minimoog, an ARP, a Solina string synthesiser," he says. "That was my first hands-on experience with synths, but they were prohibitively expensive."

His first real analogue synth was a Powertran Transcendent 2000 – as used by Joy Division – which he acquired in the mid-1970s, allegedly salvaged from an EMS skip in Putney. From that point, there was no looking back.

"It didn't have a keyboard," he chuckles. "I could just get it to generate notes which I would sort of manipulate and record. I also had a two-track Revox reel-to-reel which allowed you to ping-pong between the left and right channels, adding new tracks. And a Boss Dr Rhythm drum machine – it was that and the Transcendent that got me started."

After strengthening his armoury with essentials like a Micromoog, Crumar string synth, Roland JP-4 and JP-8, Dolby signed a record deal with EMI in 1981. With a significant advance now burning a hole in his pocket, there was still one game-changing tool he really coveted: the Fairlight CMI. Introduced in 1979, the digital synth/sampler revolutionised music, allowing artists and producers to record and manipulate voices, instruments and real-world sounds in new ways. Dolby was soon sucked in, alongside other notable early adopters.

"It was still pretty new," he says. "There were half a dozen or so in London, and they attracted a lot of interest. You'd go for demos and be rubbing shoulders with people like Trevor Horn, Hans Zimmer, Peter Gabriel and Kate Bush. But it needed a roadie to crate it around. You felt like a pioneer because only a handful of extremely wealthy people could afford them. The same year I bought my Fairlight for £85,000, I also bought a flat in Fulham for £23,000."

Having got his Fairlight home, he became instantly hooked.

"There was almost no single day when I wouldn't get up, turn the thing on, and in a few minutes I'd have something that had never been heard before," he recalls. "It was really exciting to be in that position – I was very fortunate."

Typically, Dolby knew nothing about the Fairlight before he started playing around with it, preferring just to get hands-on.

"I've never been one to read the user manual or learn the science behind the technology itself," he admits. "I'd always just dive right in – that's what I like to do. I love being one of the people defining how to use a new technology. So yeah, a lot of it was trial and error."

In those early days, Dolby's fascination with futuristic themes was invariably laced with humour. Arguably his most recognisable single is the irresistibly funky 'She Blinded Me With Science' from 1982.

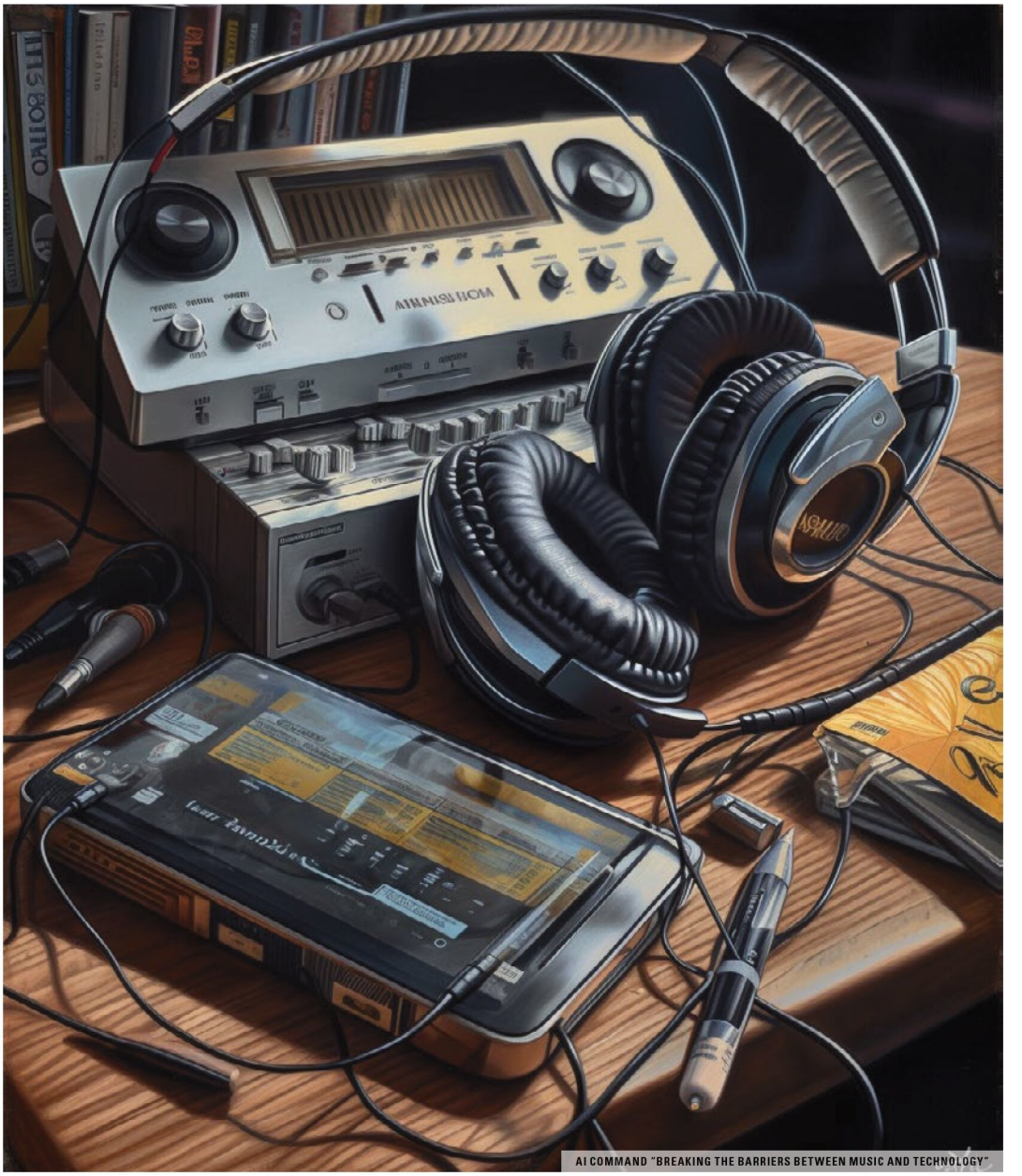
The irreverent video for the track, storyboarded by Dolby himself, features eccentric boffin Magnus Pyke as The Doctor (not that one) at "The Home for Deranged Scientists", yelling "Science!" at various points, with Dolby giving knowing glances to camera. (Amusingly, Pyke would later complain about being accosted by members of the public shouting "Science!" at him in the street.)

Throughout the 80s and beyond, Dolby released further critically acclaimed and moderately successful albums and singles, while being lauded as a synth and sampling pioneer. But not everything was rosy. Musically, he admits, he felt a tad adrift.

"My record company didn't really understand me and left me to my own devices," he explains. "With hindsight, it was probably commercial suicide to be so endlessly restless with my music. Rather than figuring out the formula that made me successful, I went orthogonally off in a different direction.

"Eventually, the industry lost patience with me. Because I kept changing my music around, they felt it was like continually having to break a new artist. A Bowie-like chameleon without Bowie's knack for nailing it each time [laughs]."

But the music industry's loss was very much technology's gain. In the 1990s, Dolby reinvented himself first as a go-to software consultant, then as a pioneering digital music and sound technology entrepreneur. He co-founded the tech company Headspace, which created one of the first virtual reality platforms and provided tools for interactive audio. In 1999, when Headspace changed its name to Beatnik, he developed software synths for mobile phones, a technology that became virtually ubiquitous across the world.



AI COMMAND "BREAKING THE BARRIERS BETWEEN MUSIC AND TECHNOLOGY"

"Basically, Nokia licensed our engine and got a four-voice reduced soundset Beatnik synthesiser working in all their phones, and it shipped in three billion mobiles," he says, with a flicker of a smile. Nice work if you can get it.

Dolby throws himself wholeheartedly into whatever he does. Following the path less travelled with total immersion. He essentially taught himself the art of filmmaking to make his lovely 2013 documentary, 'The Invisible Lighthouse', chronicling the decommissioning of 250-year-old Orfordness lighthouse that used to flash on his bedroom wall when he was growing up. And his 2011 comeback album, 'A Map Of The Floating City', was another lightbulb moment, with Dolby helping to develop an online alternative reality game based on the music and lyrics.

Jump forward to today, and Dolby is head of the Music For New Media degree course at Johns Hopkins University's Peabody Institute in Baltimore, teaching undergraduates how to compose soundtracks for film, TV and video games, incorporating 3D sound design for virtual and augmented reality.

Despite his considerable achievements, there's still a lot that excites him about what the future might bring. With technology in all its forms continuing to evolve at a rate of knots, sound design certainly has the potential to become far more creative and tactile.

"I'm not worried about the future," he says. "I'm worried about whether there'll be a planet to do sound design on, but I'm not concerned by robots taking over and wiping us out or anything like that. Everything I've seen says that the more technology advances, and the smarter the tools get, the more need there will be for a human curator as the guiding intelligence. In my opinion, our interpretation of what machines come up with is what really makes good music – it's not down to some algorithm.

"All the things we're currently doing will be enhanced with AI, no question. But I don't think we'll ever just type in, 'Give me the sound of a virtuoso violinist', and the result you'll get will be cut and paste, finished, job done. That might work for academia, for writing essays and things, but it's not going to work for music. The more advanced AI gets, the more skilful humans are going to have to be to curate it, interpret it and tweak it to make it useful."

Virtual reality, music, art performances and installations have already become more immersive – such as Abba's current 'Voyage' avatar concerts, using the latest motion capture technology, not to mention Dolby's own revolutionary virtual reality installation, The Virtual String Quartet, at the Guggenheim in New York back in 1993. Although Dolby can foresee these elements evolving and becoming more prevalent in future, he predicts that human emotion and our innate sense of togetherness will prevail.

"More interactivity and integration of personal technology into a live event has got to be a better thing," he says. "But live events give people something they don't get from technology – the shared experience of hooking up with your tribe and going to see something you will all appreciate. And that, it seems to me, is highly valued, especially among young people. So I think installations and live events are here to stay."

Dolby has also previously talked about gestural and intuitive technology – how does he see that panning out?

"I can definitely see it happening," he asserts. "I stroll down Oxford Street and there are all these pedestrians with faces buried in their phones, walking out in front of taxis and buses. I find it hard to believe that this is really a vision of the future. So whether it's smart specs or a chip implanted in your neck, there has to be some way of mixing the real and digital worlds that doesn't involve you tripping over the kerb, bumping into lamp posts or getting hit by a tram. I think that's certainly going to appear in some form.

"I was talking to somebody recently about smart hearing aids, and the idea that they could become hip. They'll not only play your music but also enhance your hearing, translate for you, keep track of your blood pressure, give you directions and so on. Same thing with contact lenses, specs or whatever. Face furniture is going to take a big leap forward."

He also envisages more ASMR (autonomous sensory meridian response) experiences – a "low-grade euphoria" which can be triggered by audio and visual stimuli – creeping in.

"People are always on the lookout for new experiences," he muses. "And ASMR-related technologies are interesting. On a certain level, they're for hedonists who can afford the latest and greatest experiences. But I do think there's a lot of very exciting development going on there."

Despite his evident enthusiasm and passion for future tech, Thomas Dolby seems ready to pass on the baton.

"My feeling personally is that the pole position for those things is inherited by successive generations of innovators," he says. "I'm now at a point where I don't need or want to be on the frontline anymore, nor do I have the right to be there. In a way, I need to hand that mantle over to people with that kind of energy and imagination.

"At my stage of life, it's better to be teaching young people how to be open to these emerging ideas. I think I can make a better contribution by doing that, rather than still being down in the trenches and messing with this technology myself."

Thankfully, he's not winding down completely. Although there's no new music in the pipeline ("There's always the possibility, but I've got no particular plans at the moment"), Dolby is very much in his happy place, continuing to take himself squarely out of his comfort zone.

"I'm working on a novel," he reveals. "I don't know what the hell I'm doing, and it's definitely not my first medium, but that's what makes it exciting."

Thomas Dolby's acclaimed memoir, 'The Speed Of Sound: Breaking The Barriers Between Music And Technology' is out now, published by Icon

UPDATING THE MAN-MACHINE

From legendary collaborations with Kraftwerk to his current Transhuman Art Critics project, renowned German artist and futurist **Emil Schult** is still beaming himself forwards through space and time

WORDS: MARK ROLAND

AI COMMAND "UPDATING THE MAN-MACHINE"

"Are you familiar with Open AI and ChatGPT?" asks Emil Schult, Kraftwerk's one-time creative advisor, lyricist, artist and futurist.

Everyone's been talking about the online AI text creator ChatGPT since its launch in November 2022. It's all the rage. You ask it to write something for you, give it a couple of prompts, and out pops an AI-generated paragraph or two. In 60 days it clocked up 100 million users. Instagram took over two years to get that kind of traction.

Emil, now with his own music/art project trio, Transhuman Art Critics, is still thinking about the future, pondering what the real Man-Machine is going to be like. It's no surprise he's been investigating ChatGPT.

"Listen to what it says about Transhuman Art Critics," he says. "Transhuman Art Critics are individuals who specialise in analysing and interpreting art from a transhumanist perspective. They focus on understanding how technology, biology, philosophy and other forces shape our ideas about creativity, aesthetics and the changing nature of art.'"

He pauses and laughs.

"Interesting, huh?"

Well! And does it sound accurate?

"It is astonishing," he muses. "But when you do more, you will notice this artificial intelligence is neither intelligent nor artificial. It's pulling things together in a very smart way, which surprises you, and you think, 'Oh wow, what is this?'."

The reaction to ChatGPT has been mixed. Nick Cave called it a "grotesque mockery of what it is to be human", and some researchers have dismissed it as a "stochastic parrot". Seems we can't rely on AI just yet.

"No, we humans are much smarter," smiles Emil.

While Emil Schult was never a member of Kraftwerk, his lyrical, conceptual and aesthetic collaborations with the band helped shape their groundbreaking work. He had a hand in every album from 1973's 'Ralf Und Florian' to 1986's 'Electric Café', contributing artwork on all of them and lyrics on most. Their 1981 album, 'Computer World', was remarkably prescient. I mean, *how did they know*? We'll come back to yesterday's electronic tomorrow later. Let's start with the backstory of Emil's current futurist endeavour, Transhuman Art Critics.

Since his time at the venerable Kunstakademie Düsseldorf at the tumultuous end of the 1960s, he's continued practising his art, travelling, learning and teaching.

"In 2014, I was working with students at the Institute for Electronic Arts at Alfred University in upstate New York," he explains. "We did synaesthetic projects in art and music, like extracting sounds from paintings and vice versa. The result was a museum show in Buffalo and a few live performances.

"Back in Deutschland, I teamed up with art specialist Emma Nilsson, and that culminated in an art music project for a museum opening in Zhangzhou, China, in 2017. We did one gig, and then suddenly we'd played five or six. We had the notion that people liked what we were doing and were interested. And that's how it came about."

A trio since 2019 with the addition of Lothar Manteuffel – Emil's friend since childhood and the founder of German new wave band Rheingold, and Elektric Music (with Karl Bartos) – the band are currently finishing their debut album, 'Transitions'.

But first, what's in a name? Why Transhuman Art Critics?

"I like the name because it has 'Art' in it, and 'Critics', which means you put deeper thought into, and take responsibility for, what you say and do," he explains. "And this other thing, 'Transhuman', is a flashy word. People talk a lot about transhumanism now. It's basically where we are heading. People are getting artificial limbs, and we're trying to link ourselves to computers – for me, it's just a way to encapsulate all these things. I'm not in a transhuman church or anything like that. You understand what I mean?"

Indeed. When you research transhumanism, some aspects come across as decidedly cultish, Netflix sci-fi mini-series territory, yet Emil is keen to stress his intention is the opposite.

"For me, it's an optimistic, clean and happy future for people," he says. "But we need to pay a lot of attention to what we do in art, what we do in culture, how we plan our future."

In Emil Schult's vision, transhumanism is more a poetic abstract, a catch-all for ideas about how mankind might, or perhaps should, progress. He's interested in updating human consciousness rather than uploading humans to computers to achieve immortality, although he has a song about that too, titled 'I Am Digitized – I Will Not Die'.

"It's not my belief. It's just like holding a mirror in front of our faces so we recognise what we're doing," he says reassuringly.

One of the many ideas he's more positive about is hyperconnectivity, a concept discussed back in 1985 by a couple of his old friends, the radical artist and his former Kunstakademie professor, Joseph Beuys, and the visionary Korean-American video artist, Nam June Paik.

"Nam June Paik used to say that if we do not get the tools of creation in our own hands, it will be '1984', under total surveillance. Big Brother will rule our lives. And now, because of the mobile phone, people can do their own little videos and music – this is the big change in our culture at the moment."

Alongside these cultural futurists, Emil was also moving among the architects of the impending computer world.

"My life was a little different from other people's because I was always travelling," he smiles. "At the time of 'Computer World', I visited Stanford in California and briefly met Steve Jobs, who was a member of the Homebrew Computer Club [a hobbyist group for early PC enthusiasts].

"In Germany, people thought IBM was maybe going to produce three computers and that would be enough. But I had inside knowledge of how people were doing electronics so I understood that this was going to be part of our lives – it would not stop. Nobody could have foreseen that computers would develop on such a scale and have such an impact on all human activity, even on art and music culture. But in the lyrics, we talked about 'Computer für das Eigenheim' [home computers]."

Kraftwerk's 'Computer World', then, was an artistic snapshot of how human life might look and sound lived alongside computers, a progress report from the cutting edge of technological and cultural thought. The computer would, Kraftwerk told us, impact everything from crime to business. It would enter our homes and our love lives, and everyone would be able to make music with devices we would carry around in our pockets. Bullseye.

While Transhuman Art Critics are an artistic vehicle explicitly exploring ideas about the future, they are also a benign hand on the shoulder, encouraging warmth, positivity and caution as we move into the unknown.

"Basically, I believe humanity is going to grow together," says Emil. "We have to learn to think *planetary*, and I believe a phrase like 'planetary health' helps. Everybody needs to understand that whatever they do is in the context of the whole planet. Of climate, of water, of other humans and so on. When we learn this, we have a good road ahead in the future. If we keep on being greedy, denying our culture, or being superficial about culture and music, it's going to be more difficult."

His optimism extends to a vision of a world where humans and animals are in psychic cahoots.

"We have a track on the album called 'Eau Télépathique' – 'Telepathic Water' – where we think about the possibility of a secret network of communication between animals and humans and everything alive," he enthuses. "Water is definitely one of the things we have to watch out for. When I wash myself, traces of me go into the ocean, the endless cycle, and share with everything… songs and music waves are the meta language of sharing."

To drive the point home, he has created some actual Eau Télépathique, contained in two bottles connected with one cap, in a limited edition of 50.

Another of the group's new pieces deals with the concept of superintelligence.

"We are just learning about ourselves, what intelligence is, and how volatile we are," he says. "Superintelligence is the next step beyond artificial intelligence – it's understanding when AI will separate from humans and do its own thing. It's an interesting thought."

And a frightening one, I venture.

"That depends on how you feel about the future. In one line in the song, we ask AI, 'Do you care when you succeed?'. What are you going to be doing for the planet if you are going to be successful? People are succeeding everywhere, becoming richer and richer, but how do they care? Greed is really getting out of hand. I don't know why people do not want to share."

Some agitation may be required here, some revolutionary muscle-flexing by ordinary folk, he says.

"I have this piece, 'Dancing In The Hyperloop', which refers to Martha And The Vandellas' 'Dancing In The Street' – the first song that was saying, 'People get ready, get into the streets, fight for your rights, dancing in the streets'. I think it's the same thing again – we need to find a new attitude to make ourselves heard. What's happening with plastics? What's happening with big companies? Why is nobody able to get a grip on that?"

Transhuman Art Critics examine the contradictions of our technological advances. On the one hand, technology is creating marvellous potential for humanity. On the other hand, there's the 'Terminator' scenario, where we have to send killer robots from the future to give technology a proper Luddite kicking. Although they don't put it quite like that, instead gently encouraging reflection and personal enlightenment.

"It's up to each individual to become the change they want to see," explains Emil. "If you want to change the world, change yourself to what you think is right. If you have the strength to do that, it will help. Music needs to lead the way. The content of music is very important. It's like a mantra for the future, and that's where I'm trying to look with my work. I don't know how good I am, but I'm trying. That's my frontier."

Harmony and technology have always been at the heart of Kraftwerk's imagery and ideas, particularly on 'Autobahn' – a very technical record, an electronic work that sounded super-futuristic and modern, and yet both the original artwork and the lyrics had a pastoral feel, a deep connection to nature.

"Yeah, the interesting thing is that you're in a position to be creative, to be abundant, to use as many different influences as you have," says Emil. "If you look at the 'Autobahn' cover, it has everything from classical historical to very modern. It has the silver electricity pylon, the little aeroplane, two cars… but it also has a very beautiful landscape, like a green gate in the distance, and on the right side a reference to the romantic landscape paintings of Caspar David Friedrich.

"I'm amazed myself at how successful this image is, and how much people like it. I just had a show in Luxembourg where I showed 'Autobahn', and people were amazed to see it. Art is good when it's timeless. Like little golden figures from the pyramids – timeless treasure. This is what 'Autobahn' is about – it's a frozen time image."

With our conversation drawing to a close, I ask Emil for his predictions.

"One thing is the further development in communication," he responds. "Another will be the quantum computer – that'll have a big impact. We'll have to rethink AI and blueprints of conduct on a planetary scale, so hopefully the quantum computer tech can work in parallel with us. On the other hand, people need to understand alternative energies, climate and taking care of the planet. We are not here to rob it. The big national civilisations should cooperate as guardians of peace and of the natural world. Don't ask what the planet can do for you – ask what you can do for the planet."

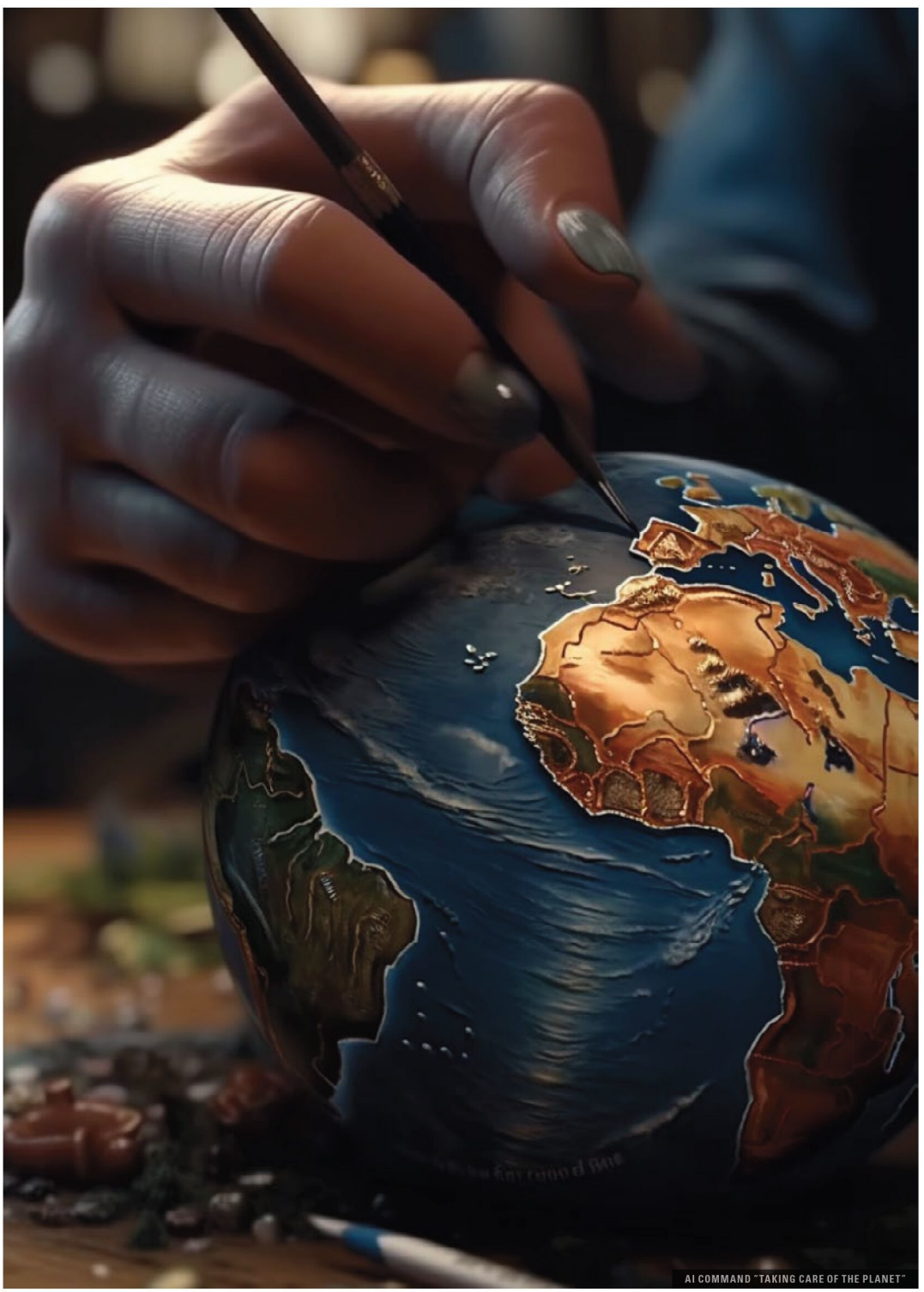
He rails against gold stocks locked up in Fort Knox and at companies who sell oil and would flog us air if they could. He remains, I suggest, as counterculture and revolutionary as ever, a product of the German underground of the 1960s and 70s.

"They're not quite the right words," he laughs. "I'm optimistic for a healthy planet!"

And the album?

"Later this year… " he says. "The title will be 'Transitions', analogous to the fact that time is transitory. Every moment of *now* touches the *future*. This we can regard as the foundation of our consciousness. And the constantly changing reality requires us to constantly update our responsibility."

For more about Transhuman Art Critics, visit transhumanartcritics.com

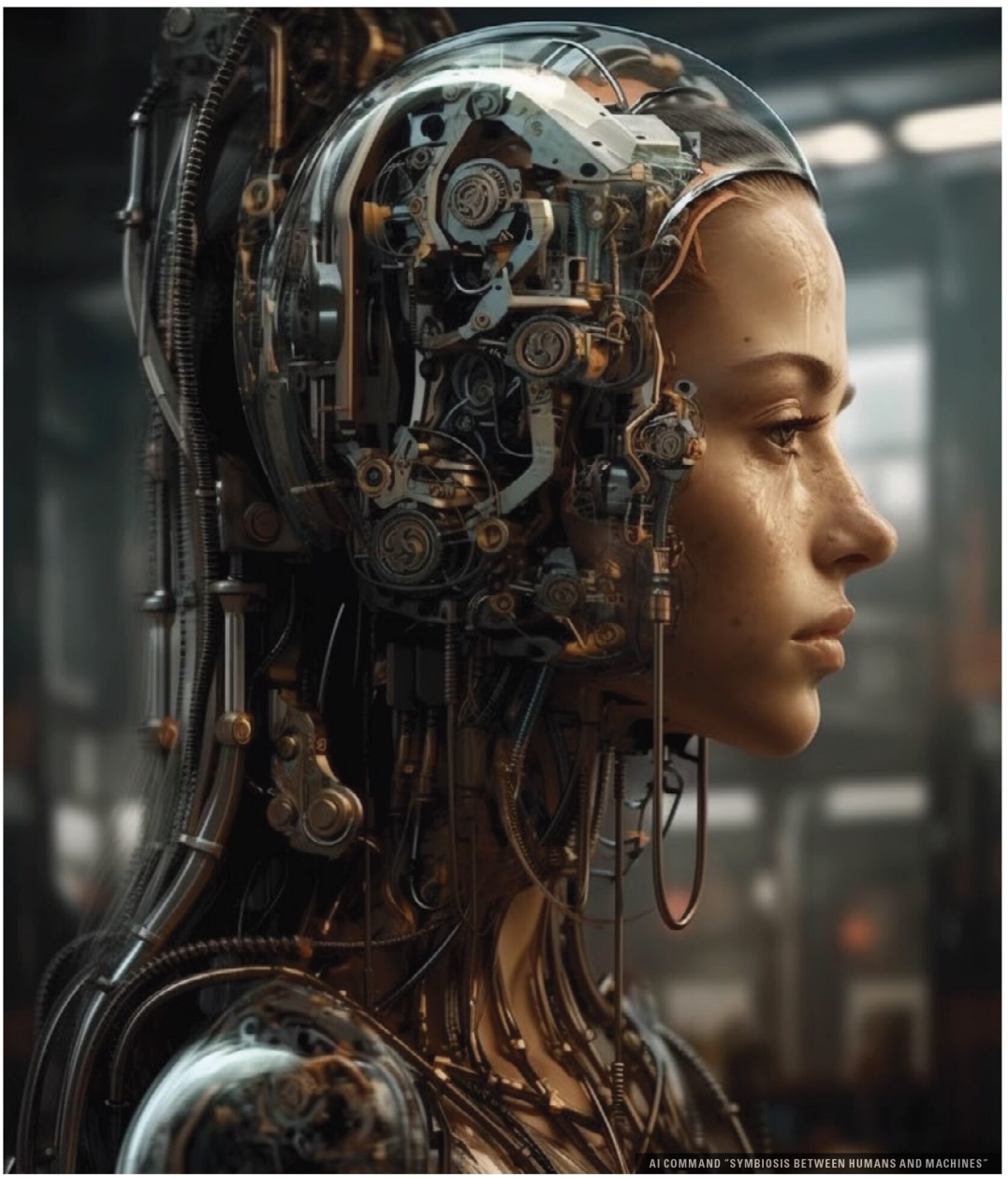


AI COMMAND "TAKING CARE OF THE PLANET"

VIVA LA EVOLUTION

Digital explorer and presenter **Aleks Krotoski** muses on the potential of the internet and AI, the symbiosis between humans and machines, and how we might cope with the next steps in technology

WORDS: CLAIRE CARROLL



AI COMMAND "SYMBIOSIS BETWEEN HUMANS AND MACHINES"

Back in 2000, broadcaster and social psychologist Aleks Krotoski was on an exercise bike in her local gym, feeling disenchanted with life. On the cusp of resigning from her job presenting gaming review shows, she was frustrated with the niche realm of video game culture and craving a change. As she pedalled, she caught sight of the gym's wall-mounted television, which happened to be showing an advert for tampons, and it struck her that the aesthetic was designed to mimic a video game.

"I remember thinking to myself, 'Hold on a second… this is a lot bigger than what I'm doing right now'," she recalls, speaking from her home on the East Coast of the United States, where she lives with her technologist partner Ben Hammersley and their young child. "'This is not going away. This is not for a small audience – this is actually the future'."

Suddenly, video games had edged into everyday reality, intersecting with mainstream culture. It was at this moment that Krotoski felt several different universes collide. Most significantly, the online and the offline, the human and the digital. But rather than abandon tech journalism, she stuck with it to bear witness as the online world shifted from niche to ubiquitous.

Aleks Krotoski has been reporting on the seemingly infinite realm of digital technology for the past two decades. Her career as a TV presenter began when she came to our screens as presenter of two late-night video game review shows, both on Channel 4 – 'Bits' (1999-2001), which she co-hosted with Emily Booth and Emily Newton Dunn, and 'Thumb Bandits' (2001-2002), co-hosted with Iain Lee.

Since then, she has been a resident researcher and curator at the British Library, a documentary presenter for BBC Two, and host of The Guardian's Tech Weekly podcast. Her book, 'Untangling The Web', was released in 2013 to critical, academic and popular acclaim, while her BBC Radio 4 series, 'The Digital Human', which has been running since 2012, is both awe-inspiring and comforting. Its gentle format, complete with ambient sound beds and field recordings, presents huge contemporary concepts, warmly inviting you to explore the expansive and often daunting digital world.

The show is certainly futuristic, both aesthetically and conceptually. It often feels like it's reporting on a sci-fi future that has already arrived. Covering everything from trolling, AI and automation to artists minting their thoughts and heartbeats as NFTs, 'The Digital Human' is as vast as the material it covers and takes listeners on a journey into the strange recesses of the internet, with Krotoski acting as guide.

Her enthusiasm for discovery is infectious. She tells me about a 2017 episode of the series, in which she reported on a story about a non-existent film called 'Shazaam'. The movie was the subject of numerous online discussions in the mid-2000s, when a group of Redditors became convinced they had the same memory of a children's film from the early 1990s about a wish-granting genie. Members of the Reddit thread recalled entire scenes and even renting the video, describing the promotional poster and cassette cover in detail.

In fact, the movie was never made. Precipitated by the internet, a whole group of people truly believed they recalled something that had never happened. The episode examines the fascinating way in which the medium can offer a breeding ground for falsehoods, collective invention and conspiracy.

"I thought, 'We've got to do something about this story'," says Krotoski. "It's a group of people who are using the technology to make something not real, *real*. Isn't that *amazing*?"

She didn't expect to be revisiting the same ideas just a few years later, though. This time, to explore the darker side of collective memory – the way in which the internet fosters misinformation and how that leads to an increase of hatred and violence in the real world. Instead of fake movies, she says, technology is now helping people to create fake governments.

The digital realm can undoubtedly be an alarming place. As Krotoski reports on these stories, does she feel the internet is becoming a frightening space, a labyrinth of dark alleys?

"Humans are always going to be human, for better or worse," she asserts. "But we go down sunny alleys too."

'The Digital Human', prior to the pandemic, was what Krotoski describes as a 'Hitchhiker's Guide' to the digital universe – a wander through a space which was beyond comprehension for most of us, busily navigating our everyday lives. But in 2020, everything changed.

"We'd been saying, 'Look at all this stuff that's happening, that we'll all become aware of in the next 10 years'," recalls Krotoski. "And then, boom! In just one year, everyone accelerated onto the internet, and it all became normal."

That sudden tidal wave of enforced online life propelled a wider understanding of our entanglement with the internet. This was not just for those with a vested interest, but for everyone. Before 2020, Krotoski says we were in the "growing pains stage of online life". Now, with the pandemic having pushed us in deeper and deeper, things have changed and our identity as "internet people" is beginning to solidify.

Krotoski believes this is a positive thing. Essentially, the more of us there are online, the more perspectives feed into the digital space and the better potential there is for the future of the internet and our online selves. Sounds good.

It's all a far cry from our vision of the future back in the late 1990s. When Krotoski's game review team were starting out in 1999, there was one computer in their shared office. At that point, for most of us, the idea that interconnected computers would be in the palms of almost everyone's hands across the world in just a few years was unthinkable.

Today, the reality of living with the internet means we now have all of the world's knowledge at our fingertips, but this experience is different to that projected image of an imagined future. While Krotoski had a good vantage point for seeing how technology might expand to augment our lives, it was still impossible to predict how this constant connectivity would impact the human experience.

"I don't think I realised what the world would be like," she admits. "That we would be connecting online, having significant relationships there. That we'd be exploring who we were because we had the opportunity to play around with our identities in a safe, secure space that would have a massive impact on our offline selves."

What this has meant, it seems, is that people have been able to understand more about themselves. This has had an enormous effect on our offline lives, both for better – as we saw in the pandemic, when technology meant we could stay in touch with loved ones while isolating for months at a time – and for worse, as we've seen with the surge in violent extremism that is propagated at breakneck speed via the internet. To paraphrase Krotoski's earlier words, humans are just going to be human.

AI COMMAND "DOWN THE WRONG ROAD"

AI COMMAND "EVERYTHING IS IN A CONSTANT STATE OF EVOLUTION"

With all that in mind, what does the future hold? How will the internet, technology and AI – among other things – further expand over the coming decades? And what will our entanglement in the digital world of 2100 and beyond look like? Krotoski predicts that what we have to look forward to is a greater symbiosis with the technology we create.

"As we move into more of an AI future, even more than we're in now, our technologies will become partners with us," she says. "At the moment, the partnership is very one-sided. The technology does our bidding – we ask it to do something and if it doesn't do it, we get angry at it."

This is true – how many of us have shouted at the satnav for taking us down the wrong road, or at our computer for crashing and losing the document we were working on? But, as Krotoski points out, while we ask a lot of our technology and are reliant on its integration and support in our lives, we don't yet have the capacity to allow it to work in tandem with us.

"We're not allowing for the reverse," she says. "We're not allowing for the technology to be tired, worn out, burned out, excited… we don't have the capacity or empathy for our technologies because we're humans. It's ours and we built it. But I'm imagining that, because of the way machine learning and AI are evolving, we will have to develop a more symbiotic relationship with it. If it doesn't get the answer right away or if it leaves something unfinished… well, that's how we are as humans, and it has to be sympathetic to *us*."

Krotoski's energy is infectious. It feels like she's on a roll now, fully getting into her stride as she relays a new story.

"There's another brilliant thing I can't wait to play with," she enthuses. "Something I just found out about yesterday. Somebody who's doing a PhD art project created a watch, a heart monitor you wear on your wrist. However, the only way for it to monitor your heart is if you have a living wire that you slot in. It's like a living Tamagotchi that produces this heart rate, but inside there's a 'slime mould' allowing the electronic connection to pass through it and get to the other circuit.

"But the slime mould has to be cared for. You actually have to take it out of the heart monitor and give it water and oatmeal so it will grow and flourish, because if it dies, there's no connection – the electronics will not connect and you can't get the heart rate on your watch. When it was being tested with users, people worked with the slime mould for longer than expected and even gave it names. And I thought, 'This is the first step in creating empathy'."

Perhaps the idea of an advanced form of technology with which we are required to show compassion sounds a litte too sci-fi, or the idea of a deliberately fallible, more human-like digital world feels too weird. But there is this sense when talking to Aleks Krotoski – whether it's about the future, music, NFTs or whatever – that everything is in a constant state of evolution.

This should feel disorientating, but it's difficult not to be drawn into her sense of awe and wonderment at these huge paradigm shifts, and to become excited for a digital future full of empathetic possibility.

"I think that symbiotic thing is something we'll advance into," says Krotoski. "There's going to be a lot of resistance, but I love the idea of being vulnerable and of 'ego sacrifice' – those are such great words when talking about digital technology."

'The Digital Human' is available now on BBC Sounds. For more, see bbc.co.uk/sounds

FAST FORWARD

What will the world be like at the end of this century? What about in the year 3000? What will music sound like in the next millennium? We assembled a panel of artists from across the electronic spectrum to give us their thoughts on what the future might hold

INTERVIEWS: PUSH & VELIMIR ILIC
PICTURES: AI, ART DIRECTED BY MARK HALL

'THE NEXT MILLENNIUM'

Meet The Panel

Gazelle Twin

Elizabeth Bernholz has released three highly acclaimed studio albums as Gazelle Twin, all of them on her own Anti-Ghost Moon Ray label. The Quietus selected 'Pastoral' as their Album Of The Year in 2018. Bernholz has also composed several film soundtracks and collaborated with the electronic drone choir NYX.

Jeff Mills

Detroit techno pioneer, one-time Underground Resistance man and creator of the legendary 'The Bells', Mills has recorded countless space-themed records over the years. His passion for the subject led to NASA asking him to host a series of radio shows exploring the intricacies of the cosmos.

John Foxx

After three years fronting Ultravox, Foxx pushed UK electronic music to new heights with 'Metamatic', his 1980 debut solo album. In more recent times, he's worked with Benge as John Foxx And The Maths and he's also known as a writer, photographer and graphic designer.

Arp

Arp is Alexis Georgopoulos, a New York electronic musician with a deep interest in non-Western folk music and the avant-garde. As well as recording albums for Smalltown Supersound and Mexican Summer, his work has been presented in a range of exhibition spaces, including the Museum of Modern Art in Manhattan.

Miss Grit

Korean-American musician Margaret Sohn began working under the name Miss Grit in 2018, when they were studying music tech at New York University. Their debut album, 'Follow The Cyborg', has just been released on Mute and was described as"remarkable" in last month's Electronic Sound review.

J Willgoose Esq

Public Service Broadcasting frontman, Willgoose has a fondness for bow ties, corduroy and unusual samples from places such as the British Film Institute and the National Archives. He once gave a TED Talk about how the best gigs are when everything goes wrong

Maria Uzor

Formerly one half of post-punk duo Sink Ya Teeth, Uzor's solo work is a groovy mash-up of electro and avant-pop with nods to both 1990s rave culture and Afrofuturism. She's also a serial collaborator, working with the likes of A Certain Ratio, Acid Klaus, !!! and Mera Bhai.

Chris Watson

A founding member of Cabaret Voltaire, Watson left the music industry in the early 1980s to work as a wildlife sound recordist, including a period with the Royal Society for the Protection of Birds. He's released several solo albums featuring material recorded at remote locations around the world.

Alex McLean

McLean is co-founder of Algorave, the algorithmic dance music movement. He is also a research fellow at Then Try This, a non-profit R&D lab making thoughtful tools and interventions with collaborators ranging from Aphex Twin to the Natural History Museum in London.

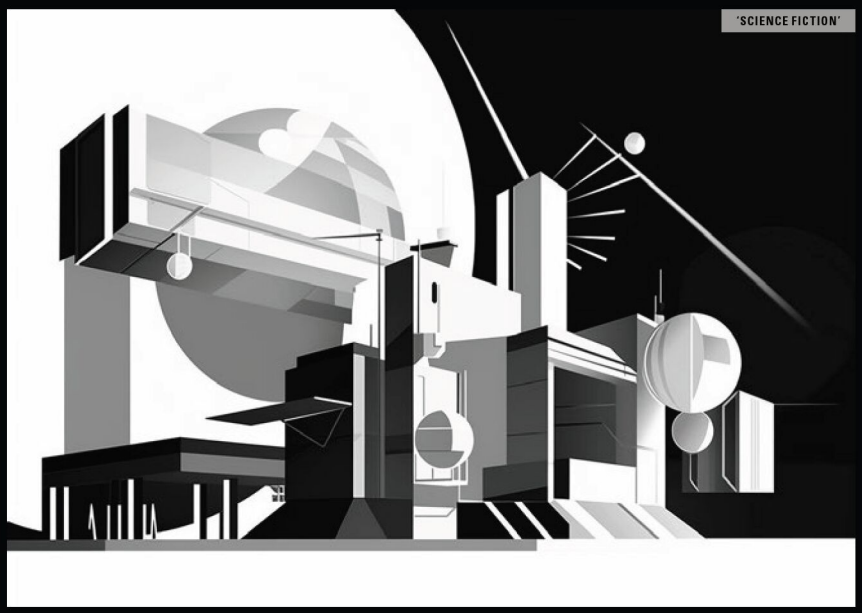
Kangding Ray

French musician and producer David Letellier has been making experimental techno under the name Kangding Ray since 2006. He's lived in Berlin since first coming to the German capital to study architecture many years ago, and his long list of remixes includes Martin Gore, Ben Frost and Battles.

Martyn Ware

Best-known for his key roles in The Human League, British Electric Foundation and Heaven 17, Ware is a long-time advocate of 3D sound technology through his fascinating work as the director of Illustrious, the company he started with Vince Clarke in 2000.

We're almost a quarter of the way through the 21st century. Is this how you envisaged "the future" when you were younger?



'SCIENCE FICTION'

Martyn Ware: "It's turned out to be a lot more dystopian than I could ever have imagined. I thoroughly mistrust the motivations of most people who hold the reins of power worldwide, and one of my main concerns is the tsunami of big data. I think that is an enormous danger to mankind. It's so easy for bad people to take that data and more effectively squeeze the orange of everyday, right-minded citizens. And every single site you visit online is scraping you for data.

"The hot discussion point right now is artificial intelligence, of course. I don't want to be a Luddite, but it does worry me because it's a tool, so what happens with it will depend on how it gets used. I'm afraid that people designing systems incorporating AI, particularly for the composition of music, are just interested in creating a bigger bottom line. A lot of it is seeking to replace human creativity, not enhance it."

John Foxx: "When I was very young, I thought the future would be bright, clean and technicolour, like 'Forbidden Planet' or 'The Jetsons'. But in the late 1960s and early 70s, we began to see a darker side leak through, reflecting events taking place in the world – Vietnam, Altamont, Manson and his tribe, and the assassinations of the Kennedys and Martin Luther King. Since then, we've had a flood of other nasty things crowding us – conspiracy theories, serial killers, Chernobyl, political corruption, bad architecture, drones, the likely end of democracy – all topped off by the possibility of human-instigated planetary destruction by nuclear war, overpopulation and pollution.

"I can't help but feel we're at a very dangerous moment now. From George Orwell's '1984', through JG Ballard and Philip K Dick, to books like Cormac McCarthy's 'The Road', speculative fiction has given us conceptual rehearsals to prepare ourselves for when the unexpected and the unforeseen actually rush in. But instead of being ahead of the curve, our speculative fiction, as well as our moralities and philosophies, seem to be lagging behind a convulsive reality. For the first time, technology and its repercussions are moving faster than our imagination."

Gazelle Twin: "I am a child of the 80s and 90s, so I grew up fully expecting hoverboards, time travel, silver jumpsuits, aliens, space holidays and being served by robots. It's hard not to be disappointed that almost none of those things are a domestic reality, and I can't live out my 'Back To The Future' fantasies in adult life. I've had to settle for Playmobil sets, which I sometimes let my kids play with too."

Maria Uzor: "When you're a kid, you have all these fantastical ideas of a technological future from watching TV programmes and letting your imagination run wild. Hoverboards is an obvious one. I kind of imagined it would be summer all the time and we'd be walking around in skin-tight clothing with blank expressions like robots. I didn't imagine anyone running and I didn't envisage much humour either! In my child's mind, I guess I saw technological advancement as a gradual move away from being human.

"I'm both pleased and disappointed with how the future has turned out so far. I love that we've managed to hold on to our humanity, and I think the smartphone has been the most profound development for communication and connection. That said, like any tool, it has also shown its potential for manipulation through power and corruption, and ironically it seems to be pushing us further away from each other and from ourselves."

Jeff Mills: "In many ways, yes. In my youth, I had imagined a lot of things we currently have – flying cars, videophones, communicating through wrist watches and human-like robots. I'd also imagined technologies that monitor and measure us for our wellbeing, as well as humans travelling into outer space searching for other signs of life and a 'Plan B' planet to emigrate to.

"And in some ways, no. By this time, I'd hoped that humans would have learned from the mistakes of the past with regard to race relations, that the fear of others some people live with would have decreased as we engage with one another more frequently. By now, I thought that as a species we would be smarter, not more ignorant."

J Willgoose Esq: "I was heavily influenced by science fiction when I was growing up, so I would have expected a few more of the old cliched flying cars and so on. When looking into the future, it's tempting to make big leaps of the imagination, without considering that most steps forward appear a bit more mundane at some level. The internet, and connectivity in general, has been the biggest change in my lifetime, but it hardly felt like it had this potential when we all first started dialling in on our 14k modems. And in general terms, the main thing that looms large is climate change and what we're going to do to get where we need to with it. That's definitely the issue that keeps me up at night."

Chris Watson: "You don't think seriously about the future when you're young. Not truly seriously, because you think you're immortal. I was interested in what NASA were doing, though, and I was excited by the idea of space exploration. I had my little tape recorder and I was making recordings of the NASA missions off the television, then using those in early musique concrète pieces. I liked the idea of the future revealing itself through what I could do with manipulation and cut-ups, because that tied into what I was doing anyway.

"I certainly didn't imagine the kind of interconnection between people and places that we have. When I was a teenager in Sheffield, going to Bridlington was a day-long trip and was a big deal, let alone the idea of flying or going in a tunnel under the sea. It's the same with the instant communication we have now, with texts and video calls. I was mostly interested in electronic music, which was the future and still is to a large extent. I could imagine elements of that. I was in an analogue domain, so I had my VCS 3 and Synthi synthesisers, which were beautiful instruments, but I understood that digital recording was starting to happen. Now everything's on a screen or behind a menu, of course."

Alex McLean: "As a computer obsessive making my own weird software, I was a bit of an outcast when I was young. I remember discovering the early internet at university, finding all these niche little online communities and getting excited about the possibilities for breaking down international boundaries. I guess the social media we've ended up with isn't exactly a utopia of deep intercultural understanding, but it's still amazing how easy it is to connect and collaborate with people around the world with no regard to borders."

Miss Grit: "Not to be a downer, but so much of this world has been such a disappointment. I don't think anyone of my generation was prepared for this. There's just so much wrong with the way our society operates. Growing up and being encouraged to dream was kind of cruel because it's not really been practical to do so. I think a positive to come out of all this has been how thoughtful and progressive new generations are becoming, but it's because they have to be in order to deal with this huge mess of the world."

Kangding Ray: "It's difficult to judge objectively, because everyone fetishes the era when they were teenagers. For me, it was the 1990s, a decade of neoliberal excess, artistic flamboyance and post-Cold War disintegration. Back then, most people still believed that technology developments would end up making our lives better. Although for a grunge kid like me, it was cool to be depressed and embrace the darkness… maybe we knew what was coming.

"We have a few good reasons to admit that the current world isn't exactly the future we hoped for. Especially climate change, which poses a clear limit to the myth of endless economic growth that our entire capitalist system is based on. This is by far the biggest challenge of our era."

Arp: "Not remotely. My vision of the future when I was younger was rosy and myopic. I was immersed in the subjective rather than the collective – less global, more local, you might say [laughs]. I was interested in music and ethnography, in learning about the larger world, and my idealistic take on globalism at the time was mostly benevolent. What did I know about the global market? Surely a 'global perspective' would lead to a more diverse perspective, to a people's history rather than the history as told by the victors, to more equality, right?

"Going back to my 20s, as optimistic as they were, the word 'futurism' excited me. The word itself felt electrified, like there was a current running through it. But as I learned about the Italian futurists, they struck me as nihilistic, not to mention blinded by ego and amphetamine. How irritating that they got to 'own' the word itself! As a proto-punk movement, there was no progress there, no evolution, no justice, no peace.

"Call me a bleeding-heart socialist but until everyone has food, shelter and clean drinking water, my absolutely last priority is something like AI. Where we choose to allocate money infuriates me. And even beyond that, I think AI is a terrible mistake. As a species, we simply can't help needing to touch the stove. Still, the tables turned some time ago. Humans now serve machines rather than the other way around. This will likely be our undoing."

'GLOBAL PERSPECTIVE'

The 1,000th issue of Electronic Sound will be published in 2098. What do you think the world will be like by that point?

Jeff Mills: "There should be less of the '100 per cent human' on Earth than now, but most humans will be similar in their appearance. We could have more nocturnal societies, as the intense solar rays may make it impossible to be exposed to natural sunlight. Living on water might be a reality again, as it was in ancient times. The pets we keep could become more intelligent. Brainwave technologies may make it possible to communicate with them on the same level, making our pets even more vital to our lives.

"By then, we will rarely use our natural voices, so eventually all the languages will be sparsely used. But this will open up a whole new period of human evolution, when we can all communicate without the obstacle of separate languages. Ethnic identities will mostly disappear and might be replaced by something based on the person's belief system. Overall, I think humans will never fully learn to cope with all the advances of technology, though. I think this detachment began about 100 years ago, in the 1920s and 1930s."

Kangding Ray: "We're entering the next phase for the human race and massive changes are about to come. Global warming will force us to adapt and, as we're seeing with the war in Ukraine, energy will be one of the main issues of our time. We'll inevitably see a return to nuclear power, as well as a huge development of renewable energy sources. I think Asia and Africa will become the leading cultural forces, while the American empire will continue to decline and Europe will slowly slide into a much-needed and comforting insignificance.

"At the same time, I can see no end to the digitisation of our lives. Artificial intelligence will be everywhere, marking the demise of intellectual property and authorship, and resulting in less original creation, but more curation. And advanced genetic science and medical technology will enable people to be able to stick around for much longer, although only the ones who can afford it."

'RENEWABLE ENERGY'

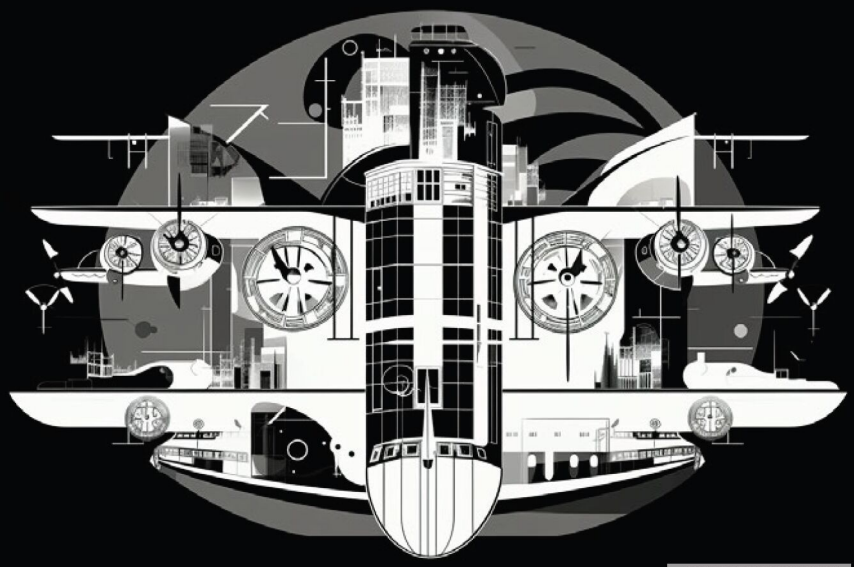
Chris Watson: "Well, 75 years is nothing in terms of our evolution. I suppose it might be significant from a technological point of view, but the thing I think about most of all is climate change. We've almost gone past the tipping point of it having nothing other than a catastrophic effect. If our seas keeps rising, if our land gets more compressed, if our air becomes more polluted and poisonous, which it is doing, then everything else pales into insignificance. I'm still positive about what can be done, and what future generations will do, but we need powerful creative solutions, not just firefighting.

"Energy is obviously a big issue and I'm hopeful about the potential of technology, particularly in terms of tidal power. I imagine we'll see a lot more localised energy supplies, perhaps even localised nuclear power. No matter what you think of it, that has potential."

Alex McLean: "With catastrophic climate change ongoing and a 1.5 degrees temperature rise already pretty much locked in, it's time to look beyond the usual "tech will save us" narrative. So I think the most promising developments are actually looking to older, more sustainable, more reusable technologies. My current research centres around heritage algorithms at work in skills such as weaving and braiding, looking at how these practices can inform new creative interfaces like music technology. Algorithmic music is all about patterns and we have to learn from these older, more established, pattern-based crafts in order to push things forward."

Arp: "My current feeling is we're in a deeply transitional moment, culturally and in terms of our viability on this planet, and 80 years from now feels far away. Will clean drinking water be available? Will AI have run amok? Will humanity exist? Will the rise of fascism reach its apotheosis? Hard not to anticipate cataclysm when, at the end of the day, big corporations and the government lackeys in their grip are really the ones making the decisions. Is this the voice of resignation or lucidity? Humanity, I'm told, finds solutions and ways out of bad situations. But did we solve the Plague?

"If there's anything to be gleaned from my own personal experience, it's that as human beings we seem to need reminder after reminder to change our behaviour. Any positive legislation that does get passed, in the US at least, is too far-sighted. Too little, too late. Sorry, but recycling, or using a tote bag, or having an electric vehicle isn't going to save the world."



'FLYING TRANSPORTATION'

Miss Grit: "Hopefully Earth will still be chugging! Being optimistic, I'd like to think rich people will use their money and their technology selflessly, in such a way that helps to fix things which are truly broken in our systems, instead of just trying to live on Mars. Technology is such an exciting thing, but it's been shown that we don't know how to consume it responsibly, so creating responsibly seems like a whole other hurdle."

Maria Uzor: "The biggest changes over the next 75 years will be to do with the climate and this will alter the way we live. Maybe the North Pole will become prime real estate as the ice caps melt and the south becomes a desert. Maybe cities will be built on water, perhaps using magnets adjustable to the Earth's core to keep buildings above water level. Maybe we'll eventually get our hoverboards and flying cars too.

"I'd like to think that we will have further developed our own internal technologies – things like kinetic abilities and communication through telepathy and instinct – and I believe this will bring about more empathy and compassion. I can see already a gradual shift towards embodiment and a homing instinct. So I think there'll also be a backlash to a simpler way of life and this could mean there will be two schools – those with mobile phone implants and regenerative body parts, and those who shun that in favour of living closer to nature."

Martyn Ware: "By 2100, I think global warming will have trashed huge swathes of the planet and weather systems will be completely arbitrary. I believe we're in for a very tough time, except for probably the richest five per cent, who will have already ring-fenced plots of land on high ground with their own water sources.

"In terms of technological advances, we're obviously moving towards more of a cybernetic future. I can envisage a time when you'll be able to transplant the human soul, with or without the brain, into a new entity. Will it be sentient? Oh, I'm sure they'll have solved that issue by then. The dysfunctional nature of software and hardware development and the imperatives that go into all that is a source of enormous worry to me. I know I'm sounding like the harbinger of doom here, but just look at the effect that smart devices and social media have had on the mental health of lots of young people.

"As soon as kids have a smartphone in their hands, it's like opening Pandora's box. Not just in terms of screen time, but the sheer nature of what they can access. Look at the example of pornography. If I'd had access to porn when I was 12 years old, I most certainly would have tried to get to it as much as I possibly could. And you have to acknowledge these issues, so you can at least attempt to address them. It's no good burying your head in the sand."

J Willgoose Esq: "I think the pace of change to get where we need to be with renewables and climate change in general is going to be extraordinary. It already has been over the past few years, but as the imperatives become stronger and governments are forced to act, we're going to see enormous changes across swathes of society in a very, very short space of time. The worry is that by this point, it'll already be too late to avert a great deal of damage and pain. I am a reluctant optimist in many ways, so I do think we'll fix it. I'd hope that most societies will have forsaken fossil fuels by 2100, so our relationship with the planet will be much more holistic and less avaricious, but I do worry about the suffering that seems unavoidable along the way."

Gazelle Twin: "By then, I would expect the climate crisis to be either under control or in the throes of total chaos. It's frightening to think that my kids will be around 80 years old then and I do often wonder what sort of world it will be. I actually imagine them living in a fairly primitive way, especially if the planet's resources are almost drained and climate change has forced all the huge city developments to stop. I don't think it will be like Philip K Dick predicted in 'Blade Runner', with these vast cities full of flying transportation. I think we'll need to have smaller, more local lives in order to give future generations a chance of survival. I think 'WALL-E' feels a bit closer to the truth. I certainly hope we're not looking at a 'Mad Max' situation."

John Foxx: "It's always worrying when you think about how new technologies are often developed or accelerated through warfare. As well as drones and robots, we could get some nasty attack creatures by gene splicing. And the genetic cookbook recipes are limitless, combining any useful characteristic from any species into a functional creature. Think wasp, fungus, bird, spider, dog, bacteria, virus, nano, mega… and then remix. There could also be accidental spills into the gene pool that may have far-reaching consequences. Add in more surveillance, more control, with technological miniaturisation making relevant devices almost invisible, and privacy is going to be increasingly valued and devalued.

"For all of that, if we can contain that dark side, we could rethink our cities, turning them into places we'd enjoy living. Imagine cities more integrated with nature. No tarmac, steel or concrete. Buildings on frameworks provided by trees and roads converted into green walkways. Only pedestrians and cyclists allowed on the surface. All engined vehicles relegated to below ground. Solar cells on every exposed surface, aesthetically designed to appear unobtrusive. Floating islands powered by water wheels. London has over 130 underground rivers and they usually follow the same routes as the streets, so why not expose them under glass pavements, plant them with ferns and illuminate them in the evening?

"Of course, if we're ever visited by an extraterrestrial civilisation… watch out! I doubt if it would be like 'ET'. The arrival of a more advanced culture into a less advanced one has never been beneficial to the visited, so we might find ourselves in the position of the Aztecs and Incas when the Spanish arrived. Our future could well be curtailed at that point."

Looking much further ahead, what do you think the world might be like in the year 3000?

Gazelle Twin: "All I can imagine is a planet devoid of life, except maybe some insects. Massive ones. If we haven't sorted out the climate crisis and the destruction of capitalism by then, then we don't really deserve to survive [insert shrug emoji here]."

J Willgoose Esq: "It's very hard to speculate so far into the future. I think humans will probably still be here, but we'll be almost unrecognisable as a species, due to the integration with biomechanics and the creation of what will be almost a new super-species."

Martyn Ware: "I don't think humans will be on Earth. I think we'll have absolutely managed to destroy this beautiful planet. And probably ruined other planets too, all for profit and greed. Nature doesn't care – it will proliferate and fill that niche that we once filled."

Kangding Ray: "I know that this will probably sound harsh and dystopian to some, but I've accepted the extinction of the human race as an inevitable outcome. And it's actually something that's desirable, so we can give the planet back to other species – to animals that don't use all the resources around them until they dry out, and to plants that don't spread like viruses.

"But to be honest, I don't see this end as being particularly sad. On a geological scale, we're just a glitch. We evolved from apes and lived in small tribes of hunter-gatherers for thousands of years. Then we settled down, built pyramids, cathedrals, aeroplanes and computers. We loved, we created amazing art and music, we had some great ideas. And then, when we used the last drop of oil, we just disappeared."

Jeff Mills: "Like other planets in this solar system, Earth may only be used for agriculture and it may not be occupied by people. Humans, or what remains of this organism, will be a nomadic species. Time travel will have been achieved and perfected long before then, so there won't be a single place in the cosmos that humans – if this is what we still are – can't and won't explore.

"By 3000, we will be ruled by a single entity and, because surviving will be more difficult, we'll be responsible for one particular task. We'll exist among other highly intelligent life forms and the history of how and why we evolved will be complete. We will know the purpose of why we were created."

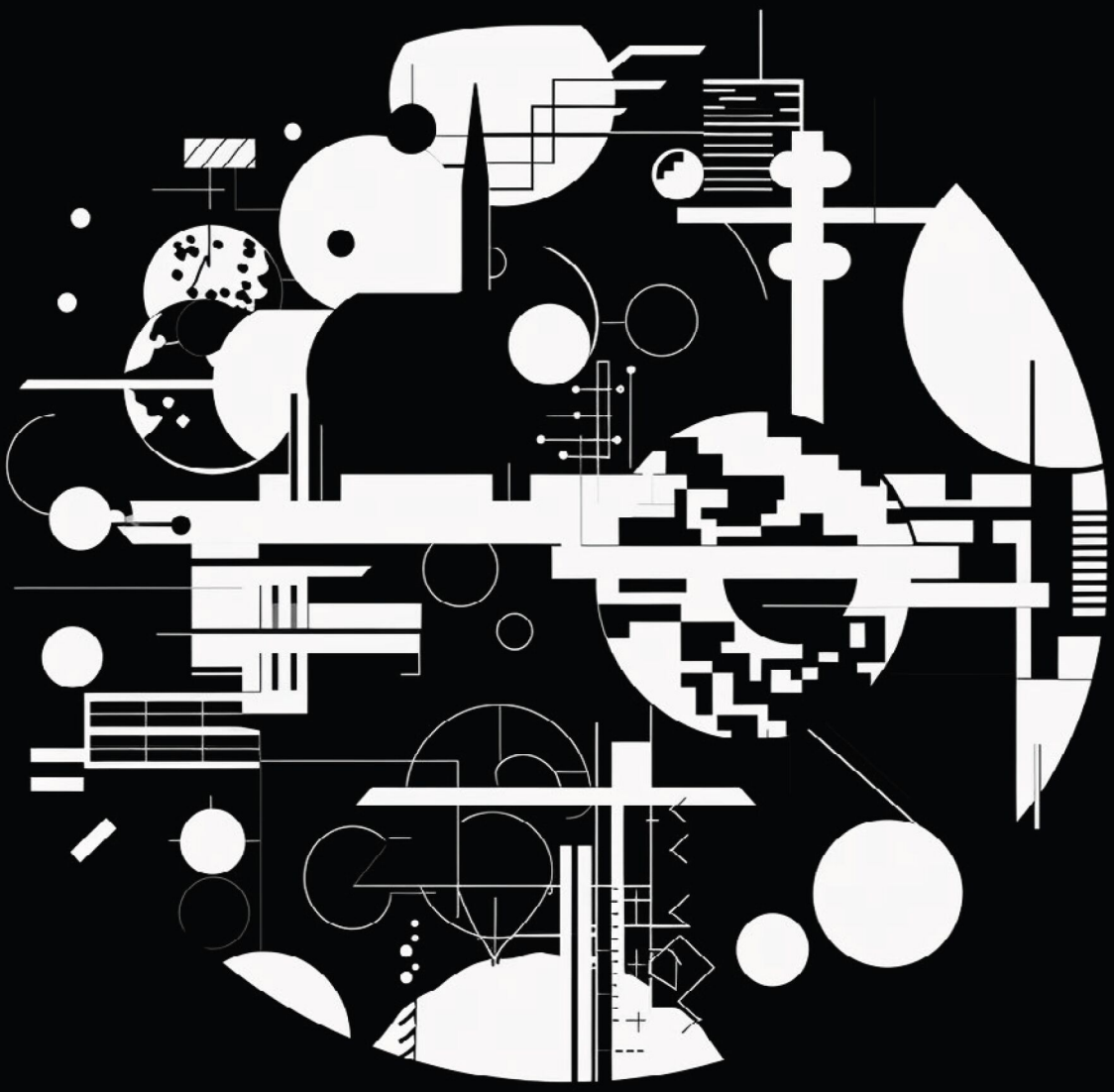
Alex McLean: "The world will change so much in just the next 100 years that it's difficult to imagine the year 3000. We're really used to our current rules of a dominant Western civilisation, but I think things are going to have to change… and the possibilities are infinite, really."

John Foxx: "We seem to have an evolutionary imperative to gather together. Ants swarm, birds flock, fish make shoals, and we make crowds, tribes, cities and nations. When we do join together, we become another entity, often with a mind of its own. I'd speculate that the swarm instinct operates strongly and deeply inside us, supplying much of the unconscious drive towards the internet, which was the first truly global network.

"Virtual reality technology and the metaverse seem to indicate that we wish to take this further and create a more immersive social world, to be able to access a vast, intercommunicating body, in the same way that starlings gather to form a murmuration. I'm not sure the electronic web will always be an adequate means of realising our swarm ambitions, though. And at that point, we might need to pause for a while to allow other, more physical or biological technologies to emerge. Perhaps the whole internet may eventually be decanted into some other, more directly biological form of connectivity.

"So in the distant future, I'd like to imagine us co-opting some of the much older worldwide webs, the vast and incredibly complex networks of our planet – magnetic and gravitational fields,

'VIRTUAL REALITY'



'FRAGMENTATION OF NATIONS'

oceanic, terrestrial and airborne migration routes, fungus, insect and bacterial interplay with plant and tree ecologies, air and sea currents, and so on. In other words, becoming part of a truly physical, connective entity and taking the long-overdue evolutionary step of becoming a species that is properly integrated into the world. Rather than feeling alienated from nature and separate from the planet, we may finally find a way to become at one with it all."

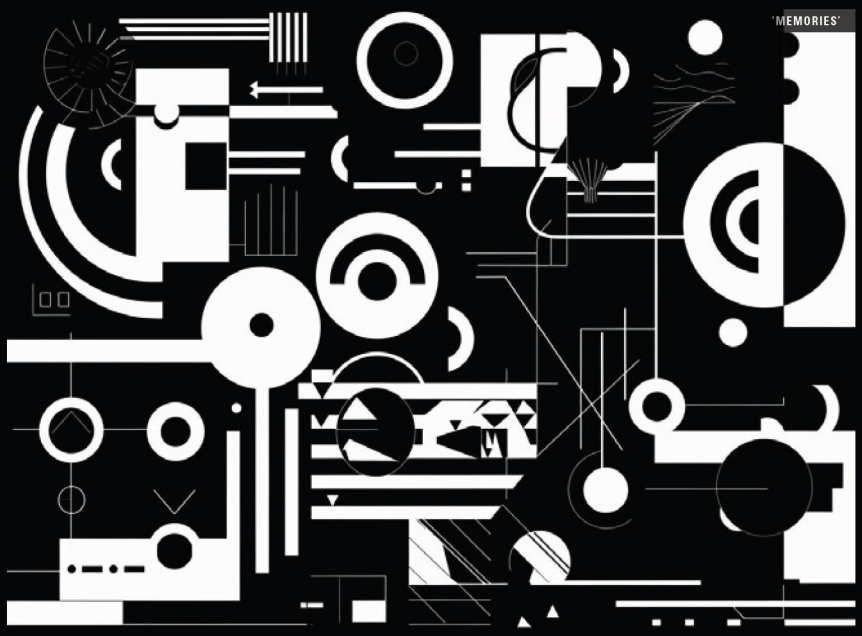
Miss Grit: "It's so hard to imagine. There's just so much wrong with the world right now, it's crazy to think this is all sustainable. Maybe the cyborgs really will take over! I think they would probably do better with the world than we have. They wouldn't have egos to drive them into the ground."

Arp: "It feels impossible to conceptualise. But if the future has its roots in where things are going now, class disparities will only deepen and widen. In many ways, we Earthlings were provided with everything – various uncontaminated natural resources, free for all. Our reaction? Industrialism. And now we spend our entire lives jacked into digital screens, as if we'll find salvation there."

Chris Watson: "Perhaps we'll have become more tribal, maybe because of what's happened politically. Right now, I'm concerned that we're in the middle of a war in Europe, which I never thought I'd see in my lifetime. So perhaps one way of surviving is through the fragmentation of nations and the the development of smaller, more isolated groups. Communities from 1,000 years ago were fragmented, but visited by people from other places. The Vikings, for instance. With Brexit, we've been pushed towards that anyway."

Maria Uzor: "I think Earth will be only one of many colonies that humans have in space, but I'm not sure how habitable it will be. Perhaps it will be mainly used for farming. Or storage, like a garage or a loft. I love the idea of us having developed our internal technologies to the point where we're able to travel vast distances almost instantaneously with just the power of thought. By 3000, I think we'll certainly have a greater understanding of ourselves as the incredible entities we are. I have faith in humankind. I believe that at our core is a desire for love, connection and community – and I think we'll have figured all of that stuff out by then."

Assuming human beings are still kicking around the universe in the year 3000, what will the music scene be like?



'MEMORIES'

Alex McLean: "We were very likely dancing in the darkness to shifting, repetitive beats in the year 3000 BC… and I think we'll be doing that again in the year 3000 AD! Musicians love to find weird ways to achieve what they want to do, but I think the fundamentals stay the same."

Arp: "My sense is that a kind of collapse, or numerous collapses, may take things in a different direction. I don't imagine the music market will be as it is now – streaming, YouTube, Bandcamp. As hard as it may be to believe, perhaps there won't be access to electricity, screens and other stuff we currently take for granted. This would dramatically affect the music that gets made… probably for the better. I imagine we'll be sifting through wreckage, occasionally finding stringed instruments and other things that could be used in a musical way.

"Socially, I wonder if we may see a return to more intimate settings, small gatherings, not entirely dissimilar to what we were doing for centuries prior to global trade. The difference may be what instruments we use. Instead of the acoustic instruments that have typified ethnic traditions, reclaimed electronic elements and diverse forms of rewired gear may become part of the palette. This might not represent a regression."

Miss Grit: "I feel the music of the future will become more interactive with the listening environments. Thinking back to early classical music, and also looking at movies that depict the soundscapes of the future, there still seems to be so much room for exploration in acoustics and how different genres can interact with different places. As we're making music with new technology, it's especially interesting to think of what alternative acoustic settings we can create, as well as how these new sounds will work with existing spaces. I think amp and reverb simulators are really cool, but I would love to see how they can imagine new sonic boundaries instead of simply simulating existing equipment and conditions."

Martyn Ware: "By then, I don't think there'll be any such thing as music. People certainly won't be sharing music. I think everything will be generated internally by using neural connections wirelessly to everyone else, or some alternative form of communication, and we'll just spontaneously generate anything that we desire. The entire process of making us all individuals who can be monetised will have reached its conclusion and nobody will be talking to anyone. It'll just be some giant cloud of stuff that you once remember was great. We're already seeing it now."

J Willgoose Esq: "I'll go out on a limb here and say that music won't exist in its current form. Instead, maybe it will be possible to artificially stimulate the parts of the brain that music currently acts on, without all the bother of having to listen to anything. So you'll be able to call up a mood or an influence of some kind and then sort of inject that into your consciousness."

Kangding Ray: "In a best-case scenario, by 3000 we'll be back to small tribes with no money, no governments and no god. We'll worship nature, get high on psychedelics, have sex, and make art and music all day. No smartphones, just a vibe. There will be no ego or fame anymore, so our favourite music will be a collective effort from our community. It will sound like a grasshopper at dusk, but as heard by the ultrasonic ears of a bat."

Jeff Mills: "Memories will be a large part of what humans think of as possessions. The industry around memories should become very powerful and important. In dimensional ways, we'll be able to relive or revisit all the dynamics of the past from any perspective. So 'listening' to music should be greatly advanced by then – one doesn't listen to Miles Davis; instead, we might be able to exist as he did."

John Foxx: "The music of the future may not be purely sonic, or even sonic at all. It may be an orchestrated neural experience. I can imagine instruments being triggered through a direct neural connection. Then later on, after we have succeeded in this, we could take it further, into an entirely new sort of internalised activation system, where the operator uses their own neural auditory system as the source. That would probably sound like a sort of 'wish power' to most people now, but it's the old adage that, from any point in history, the technologies of the future always seem like magic.

"With music operating through internal sensual, aesthetic and intellectual stimulation triggers, by accessing and orchestrating the recipient's individual memories, ideas and visions into a sort of experiential cloud or personal neuro-climate, this can be maintained at a low-level background or completely foreground intensity. It may be conducted along an emotional spectrum, from utter tranquillity to an aesthetically, intellectually or spiritually revelatory level, perhaps equal to a physical orgasm or the ecstatic hallucinatory effect of any drug. And whatever the effect, it could be private, shared or communal."

Maria Uzor: "Because of digital technology, we should still have access to the artists we have today, as well as all of the future artists of the next millennium. Maybe we'll stream music via artist holograms, so they're actually playing in the room. Maybe we'll also have implants to enable private listening in our heads and have thought-activated access to all the music ever recorded. Spotify will still be using the subscription model, though, uploading playlists to our brain-chips and collecting even more data from our thoughts."

Chris Watson: "I like to think that I'm learning continuously about music, and I always want to listen to things. I do like to experiment and I've made some great discoveries – Japanese noise music, for instance, which I never thought I'd like. If I was around in 3000, I'd still be excited by the potential of recording things outside. If we have any birds and animals left, there would probably be lots of different ones around, certainly in the seas and oceans, so that would be interesting."

'INTELLECTUAL STIMULATION'

What excites you about the future? And what scares you?

J Willgoose Esq: "What excites me is humanity's almost endless creativity and how, despite the onslaught of negativity and doom-mongering, life has been getting a lot better for most people – and will hopefully continue to get a lot better.

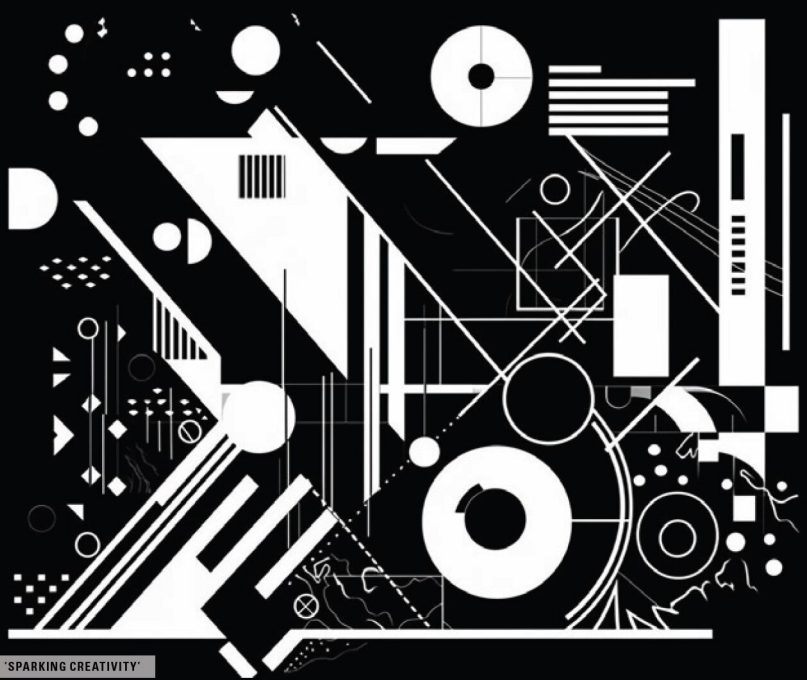
"What scares me most is the environment and what we'll leave to the coming generations. I worry that the responsibility for degrading our environment will become an albatross around our necks in much the same way that slavery and racism taint previous eras. Being seen to be eating meat beyond a certain point, being seen to fly for pleasure beyond a certain point, having a certain number of children, or any children… all these things are going to be looked back on with a huge amount of condemnation and judgement. We can't say we didn't know better, either."

Jeff Mills: "Nothing scares me about the future. I'm delighted for anything and everything that's going to come. When I think about how fragile human life is, we have to be grateful for every moment we breathe. It is not for certain that humanity will last forever, nor should it be. Realistically, our time is limited. But, if we're lucky, we might be able to experience some interesting events. This is why I'm delighted."

Gazelle Twin: "I've loved sci-fi novels and films since I was kid, and I'm amazed by new technology when it feels inspiring – like seeing the world differently, visualising things in a virtual space that we couldn't otherwise, and sparking creativity, thought and learning. Kids are great barometers of when something has a positive influence, and when it becomes harmful. And there's so much of the harmful stuff out there now. Apps that casually dish out supposedly ideal body and face images – as entertainment – disturb me deeply. It's impossible to control these things.

"I find I'm in a constant race to arm myself with knowledge, psychological frameworks, skills and ready-made responses to deal with this sort of thing when it inevitably rears its head with my boys. I'm already terrified they're growing up with what feels like a feral technology, coursing wildly through social platforms and video games aimed at them.

"Don't get me wrong, I'm not someone who thinks that shooter games raise murderers. It's other things I find disconnecting; the thinly veiled ideological identity stuff, channels that lead to porn, deep fakes and misinformation. I constantly check and try to block things, but it feels like the tide is always against me."



'SPARKING CREATIVITY'

Miss Grit: "I feel so pessimistic because the people in charge of our future suck. They honestly do. There are just so many bad people in power right now, it feels impossible to create a happy future. But I'm very excited for the new generations, because I really love the thinkers that are coming from them. It does give me hope, although I can't help but feel like our future is already fucked because of our current reality."

Alex McLean: "Mainstream conventional computing feels on a path to nowhere, so it's super-inspiring to see projects like Collapse OS, Uxn and Dynamicland taking fresh, ground-up approaches to what a computer can look like and at a human scale. I find this much more compelling than the current AI hype cycle, which is basically throwing huge energy resources at creating 'stochastic parrots'."

Chris Watson: "What really excites me is spatial sound. I work a lot in Ambisonics, which is getting better and better, and next is to have not just binaural, but proper spatial rendering, so I can hear everything around someone in their place, the traffic outside and whatever else is happening externally. So, I'm very excited about true spatial audio. It'll change the way music is made and recorded. It'll change how people work, just as laptops have with Ableton and so on.

"Echolocation, which is a biological sonar, is interesting too. With echolocation, I can look at something, scan it, then look at you, and what I've just seen appears in your imagination or in your mind. It sort of explains telepathy. There are animals on this planet now which are using something like that. We think we're pretty smart, but we're way down the pecking order really. Just imagine being able to describe music in another dimension, and as you're describing it, you hear it, not in your mind's eye, but in your mind's ear. So perhaps that's another way to disseminate music in the future.

"Because of my age, the future doesn't terrify me. I don't lose sleep over it. But war, man's continuing inhumanity to man, I find that repellent and it happens everywhere. It's the same as it was when the Vikings were here 1,000 years ago, so I can't imagine it'll change much. We've evolved into these people, in a sense, so I'm concerned about how my grandchildren will handle that, the horrors we read about every day. I try not to dwell on it, but we can't avoid it."

'SPACE TRAVEL'

John Foxx: "There is an element of fear for the future, as well as curiosity and excitement. We seem to be gaining and losing control of ourselves and our environment in equal measure. I only hope we can manage to retain some sort of equilibrium. I'm fascinated by the unforeseen consequences of any new technology and I expect we'll see a lot of that happening in the coming years."

Kangding Ray: "Despite the challenges and hurdles, there's a fascinating possibility that environmental issues will force us to find other systems and ways to live, and that might end up being better than the work/consumption hamster wheel we're on at the moment. You can already feel the cracks in the system, with many young people opting out, decelerating or looking for alternatives. They've given up on the hope of being a winner in the capitalist casino because they're better-informed than those who came before them. They know the game was rigged from the start."

Maria Uzor: "I'm fearful of the consequences of our actions on the environment, but optimistic that humanity will find a way to survive and thrive beyond what lies ahead, and I'm hoping it won't just be the rich who inherit the Earth when the shit hits the fan.

"I'm really excited about our capacity to tap into our metaphysical capabilities as a species, though. I truly believe there's more to us than mere meat-machines. I feel like we're running around functioning on about one per cent of our potential, believing we know it all when we actually know nothing. I think realising our potential would blow our tiny minds."

Arp: "My fears are well accounted for in my other answers [laughs]. Ultimately, the future doesn't exist, only the present. Each choice we make now is the choice that matters. As Maya Angelou once said: 'Hoping for the best, prepared for the worst, and unsurprised by anything in between'."

Martyn Ware: "I used to get excited by the idea of space travel and exploring other planets. Exploration is still a very strong imperative, but I think the sheer scale of the universe is beyond our comprehension. Of course there are other sentient, intelligent life forms out there, but the chances of them being anything like ours – or us encountering them – are so remote that they may as well not be there.

"What makes me optimistic? There are some good people. Enough to overthrow the bad people? I don't believe there are, but there's always hope."

Any other thoughts about the future that you'd like to add?

Miss Grit: "I just really hope we start prioritising our problems and we can band together to create real solutions."

Kangding Ray: "I hope we'll soon collectively realise that social media is designed to make us miserable, and the current hellscape of the attention economy isn't making anyone happier."

J Willgoose Esq: "Just that I think we shouldn't lose hope. It's easy to get depressed and become apathetic given all the challenges we face and our apparent powerlessness as individuals. We have to do what we can to change things personally, while pressing for change at a higher level collectively, to try to make sure humanity takes the right steps for itself and for the planet."

Gazelle Twin: "I want to quickly mention AI, which I'm watching emerge into the mainstream with fascination and caution. I've seen some truly beautiful music videos and animations made by AI, but I'm yet to really engage fully with it. It's an uncanny thing. The ultimate uncanny. In many ways, it's like nature. You know, the way a virus spreads and grows and can dominate indiscriminately.

"Again, I feel like there's this feral quality to it that we don't have any control over. I don't really understand how it works, or what the true risks are, so maybe it's not going to be like 'Terminator' at all. But I do know that I find it strange and unsettling. Perhaps it's something that the world will one day adapt to, like the Victorians did with their cameras and recording devices."

Martyn Ware: "On a positive note, we've seen some amazing health benefits already through nanotechnology and advances in the application of scientific principles and quantum physics. I think we'll see more cures for cancer, and it would be a seismic advance if they can develop fully regenerative tissue. I'm not sure that the rush towards immortality is such a great idea, though, even if ageing could be solved. My life has been a lovely trip – I've enjoyed it generally and continue to enjoy it – but I can't imagine anything worse than living forever, or even wishing it on my children or their children.

"As for climate change… well, we're fucked. I believe the ecosystem will survive, unless there's a nuclear war, but the different niches that nature occupies, the flora and fauna, will change.

"I suppose I just see the human race as a kind of virus. Obviously, there have been lots of science fiction books about AI becoming sentient, but what would it do to save the world? It would probably obliterate humans. I ought to write a dystopian novel, although I don't think I could improve on reality at the moment."

Maria Uzor: "I think every single one of our thoughts and actions as individuals shapes our collective future in one way or another. To paraphrase Gandhi – be the future you want to inhabit."

John Foxx: "As a species, we are great survivors. Each of our ancestors must have been successful enough to pass on their genes, right down the evolutionary chain, even back to the oceans. They had to have survived all the predators, wars, diseases, earthquakes and storms, otherwise each of us would simply not be here. So every individual alive today represents a million-year-long success story. That thought gives me some comfort and optimism in the darker moments."

Jeff Mills: "Yes, I wish everyone safe travels."

'QUANTUM PHYSICS'

'AI BECOMING SENTIENT'

TO INFINITY...

AI COMMAND "THE OUTER EDGES OF THE SOLAR SYSTEM"

Ever wondered what music will sound like in generations to come? Some of it – by **Brian Eno**, **John Cage**, **La Monte Young** and others – is already heading out into time and space, with more waiting to be revealed in both the near and distant future

WORDS: MAT SMITH

In August 1977, the Voyager 2 spacecraft left Florida's Cape Canaveral, followed 16 days later by Voyager 2. Having completed stunning flybys of Jupiter, Saturn, Uranus and Neptune, the probes are currently deep in interstellar space and heading toward the outer edges of the solar system – a journey that will take them anywhere between 14,000 and 28,000 years.

Assuming mankind manages to survive that long, what will music sound like by then? We have been making sounds from the very start of human existence, but recorded sound has been around for a fraction of that time – a little over a century and a half, in fact. Every 12 months, magazines and websites rush to predict which artists and styles of music will thrive the following year – a single year. Yet NASA figured they might be able to own the music of the future.

On board both Voyager probes are Golden Records, compiled under the direction of Carl Sagan. The discs are effectively time capsules, intended to be "opened" by curious extraterrestrial life forms.

Along with greetings in various languages and field recordings of common Earth sounds, Sagan added several works by Mozart, Bach, Louis Armstrong and Chuck Berry, as well as traditional music from Indonesia, Peru, China and other countries. Should alien beings manage to decipher the instructions explaining how to play them, who knows just what they will make of this assemblage of sonic artefacts.

Considering all the playing styles, trends, genres, sub-genres, advances in technology and socio-political influences that have shaped music in the comparatively brief period since the Voyager probes left Florida's skies in 1977, or since pop music emerged two decades before, it's understandable that our scanning of the musical horizon is so limited.

Just as space is theoretically infinite, there are scores of pieces of music or sound that are designed never to actually finish.

Theatre Of Eternal Music founder La Monte Young and his wife Marian Zazeela developed the concept of 'Dream House' at their home on Church Street in Lower Manhattan in 1966. The idea behind their "continuous electronic sound environment" was to create music that would exist in perpetuity, using sine wave drones, long tones and Zazeela's magenta light installation to bathe the listener in a meditative, immersive sound experience that changes as you walk around the room.

Elsewhere in New York, in the messy hubbub at the heart of Midtown Manhattan, the 'Times Square' installation, created in 1977 by percussionist and artist Max Neuhaus, is virtually inaudible for most of the day. Located in a steam vent under a subway grill, it was created using homemade electronic sound generators attached to an improvised power supply from a street lamp.

The best time to experience 'Times Square' is before dawn, when the area is home to only a few jet-lagged, slightly confused tourists hoping to catch a glimpse of a celebrity entering a TV studio for an early morning interview. It's only at this point that the piece reveals itself as a serene, heavenly, undulating drone – one that is rapidly replaced by blaring taxi horns and street performers as another day noisily unfolds.

A trip to your phone's app store is equally rewarding for locating the music of the future. There are plenty of apps available today that deliver generatively unfolding works without end. Ambient godfather Brian Eno's 'Reflection' is among the most notable. It was released in 2017 to coincide with the comparatively short-form, hour-long album of the same name.

Eno has been researching and making conceptually generative music for decades, and his development of pioneering software with Peter Chilvers to achieve that goal culminated in 'Reflection'.

"My original intention with ambient music was to make endless music, that would be there as long as you wanted it to be," wrote Eno in 2018. "I wanted also that this music would unfold differently all the time – 'like sitting by a river': it's always the same river, but it's always changing."

On Trinity Buoy Wharf in London's Docklands, just across the River Thames from the O2 Arena, stands a small lighthouse. It was constructed in 1864, to test innovative maritime lighting, so it's no stranger to experimentation. Today, the lighthouse is one of three listening posts around the world for 'Longplayer', a piece of music composed by Jem Finer (former banjo player with The Pogues) that will last 1,000 years before promptly starting over again. The work – the sound of Tibetan singing bowls recorded onto an iPad – started playing on 31 December 1999.

"'Longplayer' began in the mid-1990s, very much a thought experiment," explains Finer. "I was trying to imagine how one could make something of very long duration, far exceeding many human lifetimes. That interest went back to my childhood, but the catalyst for what became 'Longplayer' was the impending millennium and thinking about that 1,000-year time span."

At the time, Finer was experimenting with sound on an early Apple laptop.

"I was playing loops of different lengths against each other," he recalls. "So if you play a three-second loop and a five-second loop, it's going to take 15 seconds to get back to where it started. And I suddenly thought, 'Oh, hang on, if I just keep layering up loops, one on top of another, I could get to 1,000 years before they resolve themselves'.

"That was a eureka moment. That's how I came to make a piece of music that's 1,000 years long, even though the way I eventually composed it isn't like that at all. That was the spark."

To create 'Longplayer', Finer wrote a score for Tibetan singing bowls lasting precisely 20 minutes and 20 seconds.

"I find singing bowls really fascinating," he says. "In effect, they're like tone generators or complex sine wave oscillators because of their harmonic overtones. When you play several of them together, you don't necessarily hear the distinct different bells – you hear a sound synthesised from the interaction of the respective sine waves. It's a form of additive synthesis. What they give sonically is an unpredictability."

In its final form, 'Longplayer' consists of six short pieces of music – one is from the original score and the other five are transpositions of the score at different pitches. The six pieces are played concurrently for two minutes, with an algorithm choosing which sections to play in a way that ensures nothing repeats itself until 1,000 years have elapsed.

The composition was originally installed in the short-lived and egregiously costly Millennium Dome. Finer calls that location an unwelcome Faustian pact with the Millennium Commission, but it was the only viable source of funding at the time. He persuaded the management board of Trinity Buoy Wharf to install a separate listening post in the lighthouse opposite the Dome, and after a year, they agreed to host it there indefinitely. You can also hear 'Longplayer' at the Royal Observatory, Greenwich in London, at the Long Now Foundation in San Francisco, and via an internet stream and an app.

"The composition isn't rooted to any technology," says Finer. "It can be performed by human beings or by devices we haven't imagined yet. At its root, it's an abstract score which can be realised by many different means. It can survive different scenarios and find new ways of being performed."

Meanwhile, over in Halberstadt, central Germany, in a disused church that was previously a brewery and a home for pigs, a piece of music is being performed on a very traditional instrument in a very traditional setting. This performance will last until 2640.

'Organ2/ASLSP' – the acronym stands for As SLow aS Possible – was originally composed by John Cage in 1987 for the German organist and elder statesman of the avant-garde, Gerd Zacher. The overriding instruction to the performer was unambiguously there in the title – that it should be played "As slow as possible".

"Neither tempo nor dynamics have been notated," wrote Cage in his performance note. "Time proportions are given (just as maps give proportional distances)."

The Halberstadt version, devised by town's John Cage Organ Foundation, arose from a discussion at the second conference of new organ music in Trossingen in 1998, coordinated by organist Christoph Bossert. Bossert would later be involved in recording a version of 'Organ2/ASLSP' lasting a compact 78 minutes – the maximum length possible on a CD.

The discussion focused on the unique ability of the organ to sustain a note for infinity so long as the bellows are providing air.

"One of the participants of the symposium was Heinz-Klaus Metzger," explains the Foundation's artistic director, Dr Rainer Neugebauer. "Metzger was a very important theorist of music and a friend of John Cage, and he asked the question, 'What does "as slow as possible" mean for the organ, when time is no limitation for it?'.

"They began brainstorming. A theologian said the person must play until he dies, so the piece should last the lifespan of a man. Someone else suggested the lifespan of an organ, because if the organ breaks down, the music is over."

Eventually, the group formulated the idea of performing 'Organ2/ASLSP' in the disused St Burchardi Church in Halberstadt on a specially constructed organ. Its duration was determined as 639 years and this was by no means random. At the cathedral in Halberstadt in 1361, the organ builder Nicolaus Faber constructed one of the first large organs in the world.

"It was the oldest-known organ with the keyboard that we know today, consisting of the seven white and five black keys," explains Dr Neugebauer. "It was also the first example of dividing the octave into 12 half-tones, which became one of the most important decisions in the history of music."

The beginning of the new millennium was chosen for the commencement of the piece and provided a "mirror axis" in time – it was 639 years after Faber unveiled the instrument which gave us the modern 12-tone structure, and the performance of 'Organ2/ASLSP' would run from 2001, for 639 years.

Each of the eight individual pieces in Cage's score (plus one additional repeated piece, chosen by the performer) was given a length of 71 years. On 5 September 2001 – what would have been Cage's 89th birthday – the piece began with a "rest" dictated in the score. The only sound that could be heard in the church was that of the bellows. That rest lasted 17 months, after which sandbags were placed on the organ's pedals to play the first sustained chord. The chord lasted 518 days.

AI COMMAND "A DISUSED CHURCH THAT WAS PREVIOUSLY A BREWERY AND A HOME FOR PIGS"

AI COMMAND "MUSICAL INTERSTELLAR RADIO MESSAGE"

Between 29 August and 4 September 2001, a project called Teen Age Message sent transmissions from the Yevpatoria planetary radar in Ukraine towards six solar-type stars. Chosen by a group of teenagers from four Russian cities, the content of each transmission included a signal designed to attract the attention of any listening extraterrestrial, some binary data and a theremin concert. Like most of the songs on the Voyager Golden Records, the theremin performances were of resolutely *old* pieces, including traditional Russian folk songs and compositions by Rachmaninoff, Gershwin and Vivaldi.

TAM was humanity's fourth Active SETI (Search For Extra-Terrestrial Intelligence) broadcast and the first musical interstellar radio message. The transmissions are scheduled to reach their destination constellations between 2047 and 2070. Whether listening aliens send their own analogue synthesiser song back to us will be a concern for generations to come.

Since then, NASA's interstellar radio message (IRM) of 2008, consisting of The Beatles' song 'Across The Universe', has been sent off in the direction of Polaris – a star over 400 light years away. What recipients make of that will also remain a mystery to you and me.

In the slightly nearer future, although still beyond our lifetimes, Pharrell Williams has a single coming out in 2117. Maybe. The song, which deals with the complicated symbiosis between nature and the passage of time, is called '100 Years'. Recorded in 2017, it has been played once to an audience of 100 people in Shanghai and will survive only if climate change is addressed.

The impetus for the planned release came from the drinks conglomerate Rémy Martin, with the idea reflecting the 100-year gestation of its premier cognac, Louis XIII. The song was recorded onto a disc made from the chalky clay of the Cognac region of France (an area itself under threat from rising sea levels), where it's now stored in a specially constructed safe that will protect it from everything except water. Time – and tides – will determine if the rest of the world gets to hear it.

Projects that extend far out into the hereafter are fraught with uncertainty. 'Times Square' ran from 1977 to 1992, largely uninterrupted, but ongoing electricity supply issues forced it to shut down. It restarted in 2002, but was temporarily hushed again in 2020 because of the pandemic. 'Dream House' was threatened with closure in 2020 because of rent arrears that accumulated when no one could visit. And in 2017, a bomb-shaped time capsule, buried in 1984 by the clientele of the fabled Manhattan Danceteria nightclub and filled with Walkmans, Rubik's Cubes and other 80s ephemera, almost fell victim to a controlled explosion when a construction worker dug it up a mere 9,967 years earlier than planned.

The twin Voyager probes might enter an asteroid field and be completely destroyed. Times Square might be redeveloped and 'Times Square' seen as irritating and irrelevant. Someone might forget to play the next chord on 'Organ2/ASLSP'. Apple's iOS might be updated so extensively that 'Reflection' ceases to be compatible and no one will know how to update Eno's app. An alien might reply to a "Teen Age Message" and no one will notice. And perhaps BBC Radio 1 has got it wrong with its prediction that FLO will be the sound of 2023.

"Ours is a project of hope, and we know that hope can be disappointed," concedes Dr Neugebauer of 'Organ2/ASLSP'. "We must hope that we have a future… that we can reverse climate change. Maybe in 200 years, people will have no more energy for our performance. Maybe there will be a huge flood. Maybe no one will be alive. We don't know if our project might end in 2640. So for me, something like this always needs to be a project of hope."

DUO PURPOSE

DEPECHE MODE

Memento Mori

COLUMBIA

Andy Fletcher's sudden death in 2022 felt like it might trigger the end of Depeche Mode. A founding member alongside frontman Dave Gahan and principal songwriter Martin Gore, Fletch was the glue that had kept the band together for the best part of 42 years. A solid, dependable confidante to Gore in particular, the absence of Fletch's businesslike approach to Mode matters made the likelihood of a follow-up to 2017's politically minded 'Spirit' seem remote. And then, out of nowhere, hope.

In August of last year, the band posted a picture of Gore and Gahan together in a studio. The inference was clear – this was a band that was still very much alive. It transpired that they had been working on an album before Fletch passed and his death led them to double down on concluding 'Memento Mori', their 15th long-player and easily one of the most powerfully affecting collections of songs they've ever produced.

With a Latin title translating as "remember you must die", death hangs heavily over many of these 12 songs, but 'Memento Mori' is not a gloomy, mournful affair. Sure, there's darkness – this is a Depeche Mode album, after all – but its most important characteristic is a sense of acceptance. They've been here before, more than once. Their contribution to Wim Wenders' 'Until The End Of The World', 'Death's Door' approached the subject with a sense of cautionary optimism, and that's the mood that prevails on a number of key songs here. If this was a band in their early 20s, you'd describe it as "mature". You can't attach that description to a band reduced to two men in their 60s, but, strangely, that's how 'Memento Mori' feels.

There is a point in life where we have to come to terms with death. The first track released from the album, 'Ghosts Again', feels like a head-on collision with mortality, a truly and epically saddening concept when heard with inevitable thoughts of their absent band member swirling through your head. Yet it isn't dour or excessively miserable. If anything, at times it feels vaguely uplifting. Reassuring. Soothing. Not exactly hopeful, but certainly not painful. It's like a calm voice insisting that it will all be OK, that this is simply the natural order of things.

For the most part, that's the thread that runs through 'Memento Mori'. 'Wagging Tongue', written jointly by Gore and Gahan, sets lyrics dealing with dying angels to a crisp arpeggio that reverentially nods to Kraftwerk's 'Europe Endless' and a drum pattern that could have appeared on 'Speak & Spell', the debut Depeche Mode album from 1981. The track also reflects a sort of simplicity reminiscent of 'Speak & Spell', but fused with the often impenetrable emotional grandeur and transcendence that began to dominate Gore's songwriting as they approached their first decade.

One of the few tracks led by Gore's distinctive guitar, 'Never Let Me Go' carries a sense of forceful urgency, harking back to 'A Question Of Time' from 1986, with its notion of time running out, while 'Soul With Me', the obligatory heartfelt track sung by Gore, gazes comfortably at the afterlife without anguish or fear and is one of the surprises here. If the theme is by now an established one for Depeche Mode, its presentation is anything but, sounding at times like an MOR ballad by Billy Joel or Nik Kershaw's wise 'Human Racing'.

Other surprises come in the form of 'Caroline's Monkey', sung jointly by Gahan and Gore, which tackles the demons of addiction and compulsive behaviour that both have overcome in their lives.'People Are Good' feels like an updated response to 1984's 'People Are People'. The song acts as a mantra ("Whisper it under my breath / So I don't forget") and, whereas the 1984 hit could find no good in people whatsoever, 'People Are Good' tries desperately to believe that some is there to be found, despite ample societal evidence to the contrary.

The album concludes with 'Speak To Me', co-written by Gahan and drummer Christian Eigner with the album's producers, James Ford and Marta Salogni. It's a semi-symphonic piece, vaguely nodding in a theatrical, almost 'Phantom Of The Opera' direction. 'Speak To Me' presents a sense of coalescence, a haunting, anxious, honest moment of finality. "I will disappoint you," sings Gahan plaintively. "I will let you down." He couldn't be further from the truth.

"Fletch would have loved this album," said Gahan when 'Memento Mori' was announced. I'm sure he would. It stands as a powerful tribute to their absent friend, and an important, precisely executed reminder of our collective impermanence.

MAT SMITH

DEPECHE MODE
Memento Mori

LOUIS VI – PHOTO: DYLAN JAMES MOORE

LOUIS VI

Earthling

HIYASELF RECORDINGS UNLIMITED

North London's Louis J Butler, aka Louis VI, is not just a rapper and producer of bountiful talent, but also a fiercely principled green activist of Caribbean, French and British descent. Merging his passions has resulted in this standout second album, 'Earthling', the inaugural release on Nightmares On Wax's new imprint HiyaSelf. It's a collaboration-stuffed paean to nature and Earth itself (Lex Amor, Oscar Jerome, Moses Boyd, Bluestaeb, Alex Cosmo Blake all feature), but also a full-blooded kaleidoscopic mix of hip hop, jazz, electronic, Afrobeat, funk, R&B, and soul that demands the attention of your heart, head and feet. **AT**

SIR-VERE

Lovescope

BONGO TRONIC

There's something beautifully British about the clash of sounds swirling around Milton Keynes four piece Sir-Vere's latest album. 'Angel Of Death' creeps maliciously like the darker end of Massive Attack, but 'Peer Pressure' and 'The Crazies' are like a speed-laced Sleaford Mods and just as catchy. The recent addition of second singer Ian McEwan gives the rough-edged goading of frontman Craig Hammond a fantastic foil to bounce off, and the addition of live drums to their trademark acid/techno/house fusion is similarly enlivening. **BW**

MOMBI YULEMAN

The Curse Of Spring-Heeled Jack

BANDCAMP

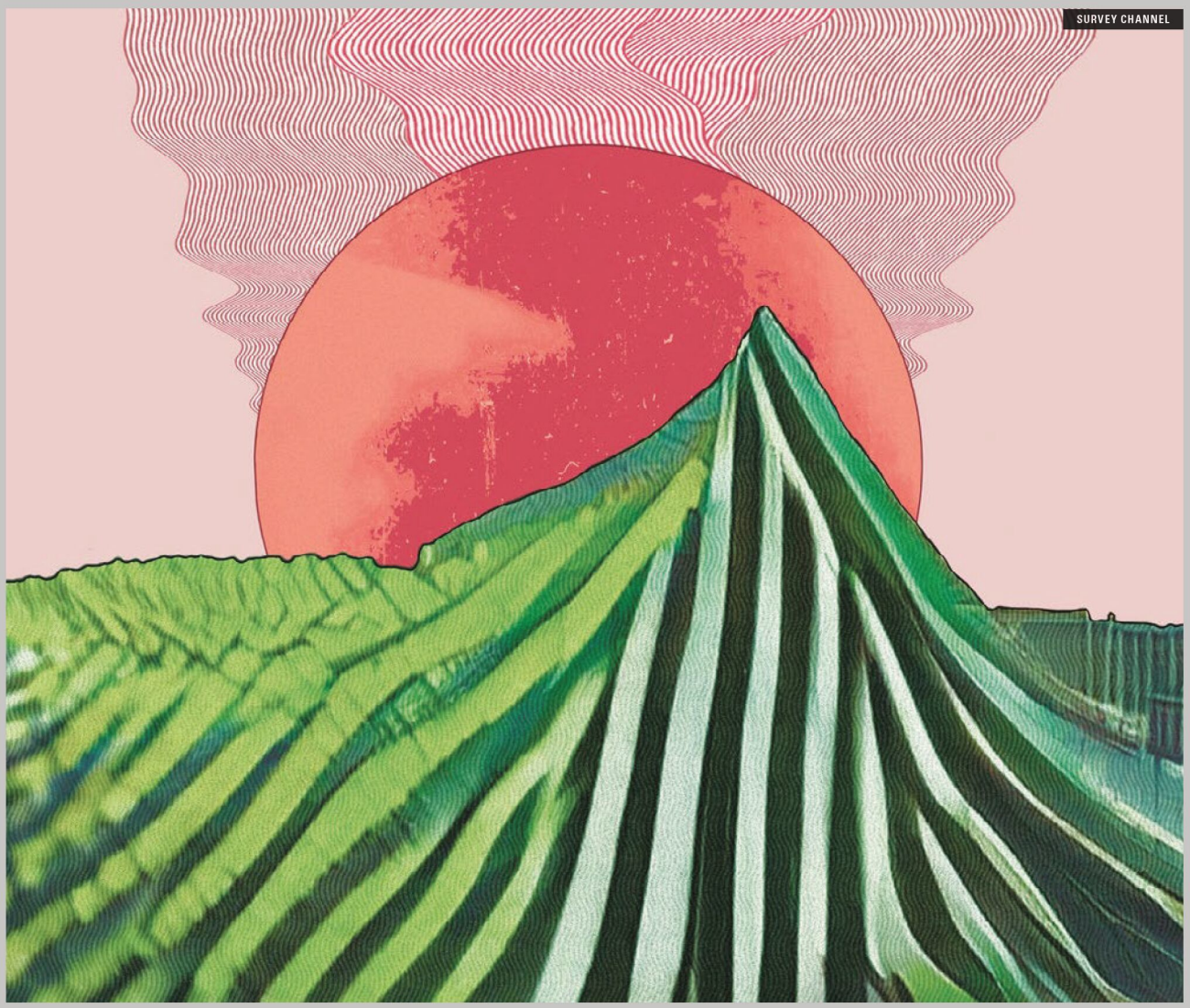
"In the 1800s, there were many sightings of a devil who was able to leap from rooftop to rooftop… this phantom was reported all over the United Kingdom". The stories clearly made it to North Carolina too, where beastie-obsessed Yuleman has crafted this splendid album of gothic synth anthems. Jan Hammer Horror, anyone? 'Hammersmith 1837' is melodically bombastic, 'Paranormal Mechanisms' boasts spooky arpeggios peeping through a pea-souper of wafting mellotrons. But things get darker, as rumours of Jack later spread to Nazi-occupied eastern Europe, and 'Prague 1945' boasts a genuinely chilling edge. **BF**

TURTLE

Landmass

OLD WORLD – NEW WORLD

Argyll-based electronic musician Jon Cooper releases his second album under the nom-de-guerre Turtle, an ambitious collection that eschews minimalism for the grand gesture, with a touch of the sonic ambition and conviction of Vangelis. Cooper reaches for the stars on 'Landmass', and for the moon on the celestial soundscape of – you guessed it – 'Moon'. Conversations with his late Uncle Archibald, a particle physicist and science fiction writer, inspired the 808-driven 'Mars', one of three retro dance bangers that'll bring your feet back down to terra firma. **JA**



SURVEY CHANNEL

Canvas Doubles

WERRA FOXMA

"Foggy happiness of barely remembered days long gone. Hazy summers. Gazing up at blue skies, wondering what it's like to fly…". Matt Donatelli is from Buffalo, NY. And blimey, he's a man of his word. The opener 'Usselo' throbs like an afternoon daydream, 'Debris Analogs' adds Boards Of Canada beats and tinkling, half-asleep synths. Then 'Magic Weather' fizzles in the late sunshine as great, white whales of clouds lollop across an ambient sky. Donatelli, it seems, has finally soared to the heavens. An album with wistful joy in its heart, and a pale stalk of wheat dangling idly from its mouth. **BF**

OREN AMBARCHI

Grapes From The Estate

BLACK TRUFFLE

Originally released on Touch in 2004, Oren Ambarchi's 'Grapes From The Estate' receives a welcome vinyl reissue via his own Black Truffle label, and in almost 20 years, its four elongated soundscapes have lost none of their impact. 'Corkscrew' opens the record with a series of interlocking tones, cycling around a series of reverberating cracks and whips, before 'Girl With The Silver Eyes' splits those sounds wide open to reveal a dazzling guitar shimmer, like jewels glistening brightly in strata. **ST**

JQ

A Plastic Bag Filled With Water

GREEN

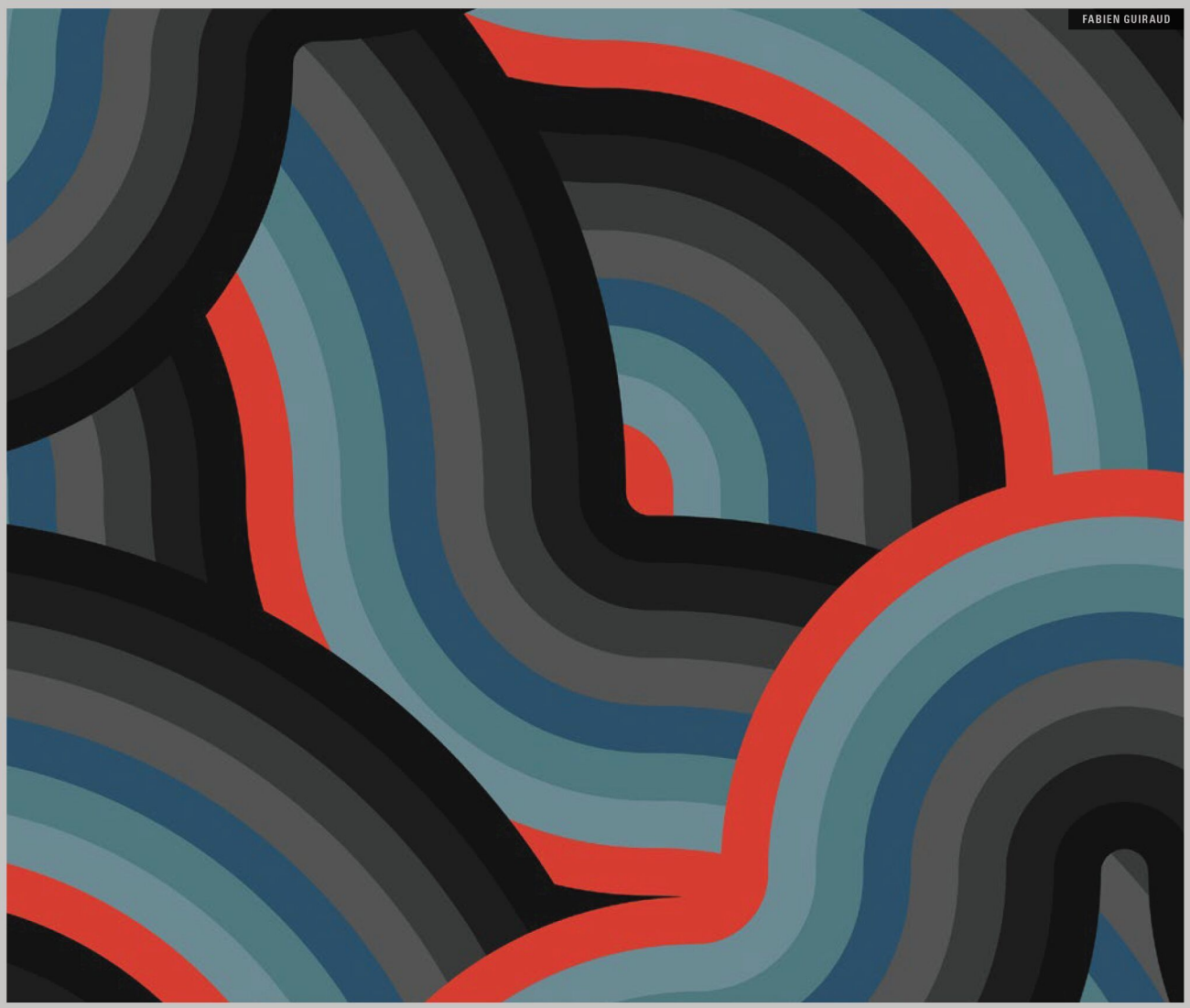
This third full release from talented London electronicist JQ is probably his most complete yet, with its distinctive and arresting quality that often carries the complex air of Japanese "environmental" ambient music. Here he soundtracks the fragmented but often transcendental nature of modern life with real aplomb, weaving sampled YouTube ads (see the brilliant simplicity of 'Makeup Tutorial'), public address systems and intimate conversations into a beguiling mesh of blinding colour and vaporous hypnagogia, as on the standout 'Koi No Yokan'. Superb. **CG**

DICKY CONTINENTAL

Un…

ACID JAZZ

Dicky is Rich Thair of Red Snapper and The Aloof fame, and his debut solo album fits nicely alongside his extensive discography. Indeed, tracks like 'Chico Florres' and 'Evolution 2' retread much of the same territory – crisp hip hop beats, looped samples and, on the single 'Make Them Disappear', mournful vocals. Things get interesting when Thair experiments, sampling himself dismantling an untunable piano on, er, 'Broken Piano' and looping a string quartet on the charming 'Mavron'. More of the same next time, please. **WS**



FABIEN GUIRAUD

La Prise Électronique

L'HISTOIRE INCONNUE DU DISQUE

Fabien Guiraud is a London-based French musician who played in the Parisian electropop duo Chateau Marmont before deciding to go solo and pursue a more aleatoric route. On 'La Prise Électronique', his third album, Guiraud pares everything back to create a sketchbook of wonky sonic doodles, each evincing its own special charm. 'L'Eau Du Nil' and 'Image & Dialogue' are oddly effervescent with a Portishead vibe, while 'Sous Le Soleil Couchant' takes you on a cosmic journey reminiscent of 1970s Klaus Schulze. **JA**

ROSSO POLARE

Bocca D'Ombra

SAGOME

Listening to 'Bocca D'Ombra' without context is pretty interesting. But, once you know that Rosso Polare – the Italian duo of Anna Vezzosi and Cesare Lopopolo – take inspiration from Timothy Morton's concept of "dark ecology", listening to these four found sound collages becomes completely engrossing. Matching Morton's philosophies, the pieces question human relationships with nature. On 'Albanella', birdsong is gradually swallowed by anxious human breath, while 'Golagialla' pans around a drone as it morphs from insect chirp into prickly industrial buzz, all of which is completely invasive and unsettling. Morton would approve, I think. **ST**

CHIK WHITE

Wind Wound

FULL SPECTRUM

Nova Scotia's Darcy Spidle and his 10-foot horn, everyone. Spidle (aka Chik White) was presented with this homemade brass instrument by a student at a local college, where he was lecturing. This striking collage is his bold attempt to master the outsized contraption. There are two lengthy suites – 'Wind Wound Pt 1' begins gently and swells to an overwhelming symphony of looped parps, 'Wind Wound Pt 2' is darker, with alarming yodelling buried deep within the mix. Apparently, the horn is now broken, so this hypnotic artefact is all that remains of its legacy. **BF**

ABADIR

Melting

DROWNED BY LOCALS

After critically acclaimed albums for Genot Centre and SVBKVLT, Egyptian producer and music critic ABADIR releases 'Melting' through Jordanian sound rebels Drowned By Locals. Alchemising "about 500" sonic snippets from diverse spheres of culture, the plunderphonic sample fusion of 'Melting' speaks volumes about the onslaught of sound-as-marketing-tactic in the 21st century. Part concerning documentary, part amusing sonic essay, ABADIR's attention veers from beat-tape hip hop to experimental sound design. Imagine Madvillain dissecting the ennui of late capitalism, and you're halfway close. **FH**

LIGETI QUARTET X ANNA MEREDITH – PHOTO: ED MILES

LIGETI QUARTET X ANNA MEREDITH

Nuc

MERCURY KX

This hugely enjoyable collaboration between Anna Meredith and London ensemble Ligeti Quartet sees a choice selection of the award-winning electronic composer's output reworked by the equally feted contemporary string quartet, often in startling, ultra-modern fashion. Compelling throughout, standout moments include a new version of 'Nautilus', Meredith's signature piece reimagined by viola player Richard Jones with near-psychotic intensity. Bow scrapes and frenzied stabs of staccato are added to a piece that was already liable to spread panic and anguish among the best of us. Bravo! **CG**

HOLLY WAXWING

The New Pastoral

PC MUSIC

'The New Pastoral' comprises six synth doodles which, while far removed from the consciously superficial hyperpop that AG Cook's label is known for, share the same pristine production and sped-up processed vocals. Globules of sound jostle for position alongside synth raindrops and daubs of sampled instruments. Only the closing 'Arvensis' has anything resembling a conventional tune. Rhode Island producer Waxwing is aptly named. His music flits about, unable to alight anywhere for more than a moment or two, but there's beauty in its quicksilver spirit. **WS**

SCOTCH ROLEX & SHACKLETON

Death By Tickling

SILVER TRIPLET

Skull Disco co-founder Shackleton is no stranger to working with others, leaving in his wake a trail of primal percussive-centric collaborations throughout a decade of his career. Japanese artist Scotch Rolex, a musical enigma who has made dubby dancehall as half of WaqWaq Kingdom and moonlights as DJ Scotch Egg, matches Shack's dances move-for-move on 'Death By Tickling'. Shackleton hasn't come this close to his early cerebral club sound in years – 'Asterids (Enter Life)' is a rhythmic tantrum on tuned percussion and 'Five Butterflies' a soft-spoken spell summoning some vestige of older gods. **FH**

E-UNITY

BBB<3

TEMƎT

Rather like his label boss Simo Cell, fellow French artist E-Unity hijacks existing clubbing sub-genres and subverts them to create something unique and delightfully non-conformist. The seven tracks are very different but, with the exception of Kamohelo's shady-sounding vocal on the grime-inspired 'Nami', they're united by a love of synthetic electronics and sugarsweet melody. 'Etra (Home)', 'Avray, Link' and 'Zimba Frog', all of which use faster African-style rhythms, are the most thrilling, but even when he delves into more pastoral electronica it's done with style and swagger. **BW**

TZUSING – PHOTO: ZENG WU

TZUSING
绿帽 / Green Hat
PAN

Muscle EBM, girder-strong synths, a stunning mid-point tribal scream? The loping '趁人之危 (Take Advantage)', punctuated by a furious straw-suck taken from 'There Will Be Blood'?! It all sounds super masculine. Grrrr. Yet a robotic voice tells us that 'Green Hat' is a cuckold symbol. This is maleness subverted and, as with 2017 debut '東方不敗', Tzusing ultimately eschews machismo for melody. This brilliantly listenable power techno pummels ears of any gender. **FR**

MASAHIRO TAKAHASHI
Humid Sun
TELEPHONE EXPLOSION

Since relocating to Toronto, Japanese composer Masahiro Takahashi's compositions have been subject to the creeping influence of Canada's tempestuous city in an unusual way. 'Humid Sun' is a collection of ambient jazz-infused, sun-drenched soundscapes (especially 'Sweltering Drive' and 'Sea Fireflies') completely at odds with the city's harsh winters. Working with Tokyo producers Takao, Yamaan and H Takahashi, and the Toronto experimental community, he melds electronics with improvised piano, vibraphone, sax and flute to create the languid, sumptuous sound of the exotica takeover. **AT**

FATEN KANAAN
Afterpoem
FIRE

Given that Syrian-Palestinian-Jordanian-Lebanese musician Kanaan was born in Germany, raised in the Middle East and is now based in Brooklyn, she could be forgiven for operating a cultural pick-and-mix approach to her music. Instead, 'Afterpoem' is so original and unexpected, it feels impossible to place in either space or time the beatless, instrumental exercises typified by economic, delicate performances and potent moods. 'Castling', with its harp-like synths and bubbly playfulness, is one clear highlight but the whole work is a tour de force. **BW**

ADAM MATSCHULAT
Formosa
CALLING CARDS PUBLISHING

Located in Brazil, Formosa is the familial home to Adam Matschulat, and these two long-form sound collages are intended to evoke the feelings of safety which that place provides. Here, he does it via juxtaposition. Side A comprises a mixture of field recordings and unsettling drone, sharpening the calmness and warmth which follows on Side B, where chilly electronics fade to leave the sampled snippets of everyday tinkle and clatter. After the initial unease, these sounds are familiar and inviting, like revisiting a childhood home. **ST**

JONATHAN SHARP

JONATHAN SHARP

Niavka

SPUN OUT OF CONTROL

Sharp's records as The Heartwood Institute are imbued with the gentle, bucolic stillness of his native Cumbria. 'Niavka', however, is an icy departure, rooted in the brutalist synths of a future Eastern bloc apocalypse. Inspired by his own '2000 AD'-style short story, he sets out his stall with 'Drone Down', and it's a stall proudly stocked with the melodies of peak-era Kraftwerk. But there's also dark, sci-fi ambience in 'The Shadow Taken Form', and 'Infection Alarm' draws on Sharp's own distant past as a producer of head-thumping industrial electronica. Gloomily beautiful. **BF**

FROID DUB

Deep Blue Bass

DELODIO

The Paris-based duo Stéphane Bodin (aka Fafane) and François Marché (aka FM) hit upon the idea of making deep dubby grooves as an antidote to the loud rock music Fafane was exposed to working in a late-night bar. Theirs is a slow-motion approach to music, but it's never lethargic, with the vocoder-led slo-mo disco anthem 'Not Loved' proving instantly loveable and the Hooky-esque live bass workout 'Wet Dub' and subtly skanking 'Item By Item' not far behind. **BW**

JACQUELINE HUMBERT & DAVID ROSENBOOM

Daytime Viewing

UNSEEN WORLDS

Exploring "the use of fantasy as a survival mechanism against loneliness" and illustrating "the human compulsion to inflate the mundane to mythological proportions", Jacqueline Humbert and David Rosenboom use daytime television as a basis for this suite of brilliantly weird pieces. Originally released in 1983, 'Bareback' and 'Talk 2' blend bubbling, John Baker-esque electronics with easy lounge textures. The most potent moments come when Humbert's vocals kick against the subject matter, as on 'Distant Space'. Interstellar action with soap opera melodrama. **ST**

HELLO COSMOS

Hard Dirt (Hello Cosmos Remixed)

COSMIC GLUE

Hello Cosmos trade in muscular riffola, icy electronica and mardy post-punk, like a Manc LCD Soundsystem. This remix project combines a global underground of remixers with more familiar names like Richard Norris and Jagz Kooner. Big tent-pleasers (Hereldeduke's 'Golden Dirt' and Joe Thompson's 'Raise The Dawn') rub shoulders with the analogue drum machine of Kooner's 'Run For President', Caro C's fractured 'Hard Enough To Start With' and the catchy idiosyncracy of Elara's sax honk 'From The Ground Up', for what is a very sparkly and coherent collection. **MR**

ALE HOP & LAURA ROBLES – PHOTO: KASIA ZACHARKO

ALE HOP & LAURA ROBLES

Agua Dulce

BUH

Alejandra Cárdenas' (Ale Hop) and Laura Robles' mission isn't simply to create adventurous music. With 'Agua Dulce', it's nothing short of a radical reframing of traditional Afro-Peruvian rhythms. The album is named after the most popular beach in Lima, where the artists grew up without ever meeting. Robles plays a self-built electric cajón, a box-shaped percussion instrument that's imbued with the symbolism of resistance and defiance against colonialism. Across tracks like the fizzing, buzzing 'Lamento' and ' Fuga En Alcatraz', the pair are seeking not just to showcase the cajón in a modern electronic setting, but to wrench it free of its ongoing museumification.

Ale Hop adds electronics and electric guitar, which reframe the ceaseless rhythms of the cajón, creating an unsettling and angry sonic landscape that reaches a climax at the conclusion of the standout, 'Huayco'. This overall mood is only lightened on the title track, uncharacteristically evoking the lush textures of classic-era 808 State. A powerful and innovative music statement. **AT**

µ-ZIQ

1977

BALMAT

What starts at '4am' and ends with 'Froglets'? No, not Paul Thomas Anderson's 'Magnolia', although maybe the auteur comparison holds. They're track titles, of course. Mike Paradinas debuts on Barcelona's Balmat imprint, with an ambient album. Its title refers to a purple period for the genre, when Cluster met Eno. That influence is evident.

But this is Mike and he's a menace. The horror squeals of 'Allegro' add unease to an elegiac melody. The hornet acid of Meemo Comma-guesting '1977' is plagued by synths so vinegary, they sting the eyes. Then there's the gloriously sinister 'Belt & Carpet', a banger with all the dials turned down: Hudson Mohawke shaved of mohawk.

Tracks like that emphasise more traditional Paradinas paradigms, such as the wonderful 'Mesolithic Jungle' and its clown-car breaks, or the previously mentioned 'Froglets' which feels like Aphex's 'Ageispolis' as proggy drama.

Cluster in a fluster? Eno gone emo? No, just µ-Ziq gone moody. With added frogs. **FR**

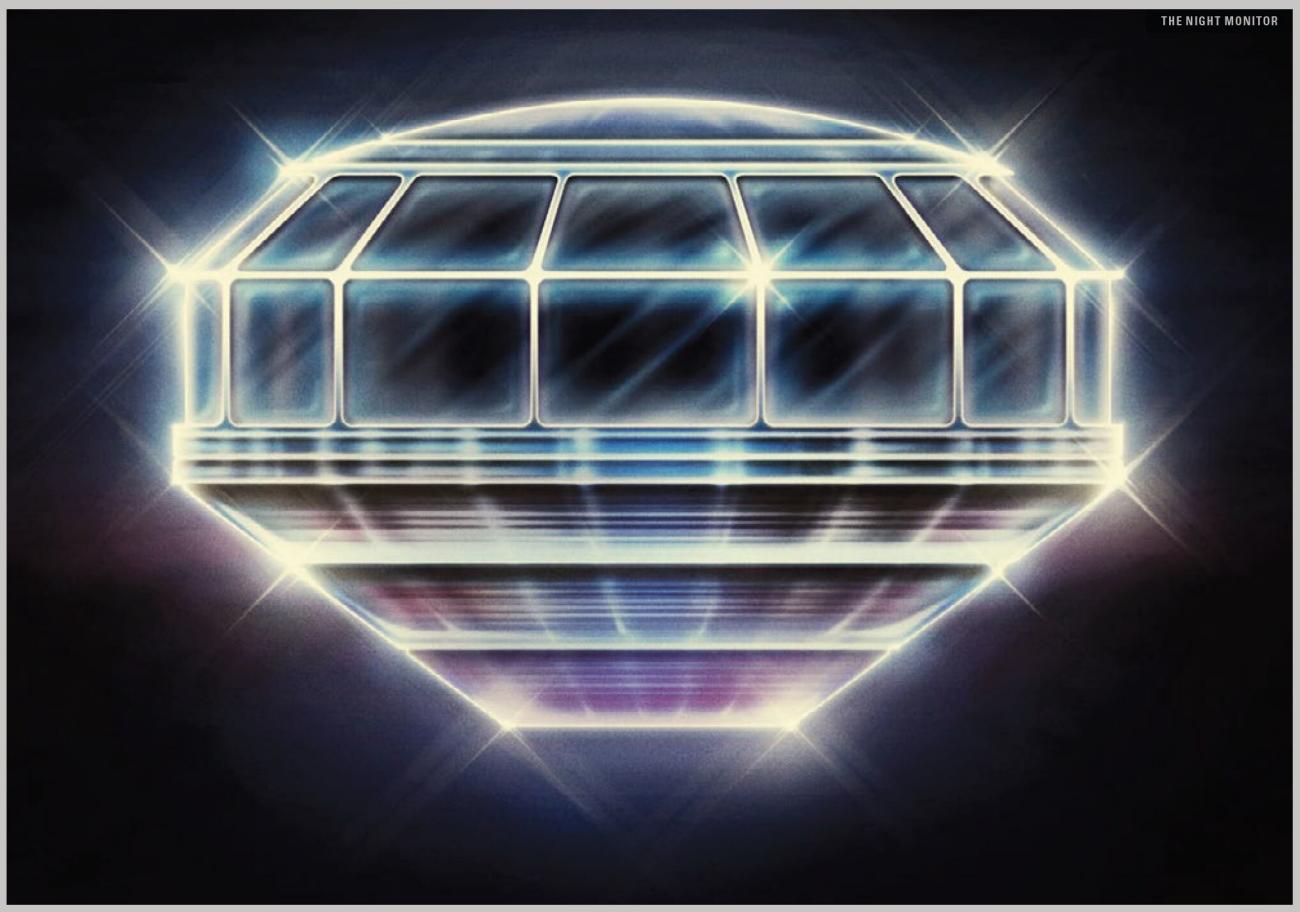
VARIOUS ARTISTS

Turkey & Syria Earthquake Relief Compilation Vol 1

MÜSTESNA

In the aftermath of the powerful earthquakes which struck Turkey and Syria in February, Istanbul's brilliantly diverse Müstesna label steps into the breach with a two-part benefit compilation. It's released in collaboration with Dance Music From Planet Earth, which funnels profits to Bir Kira Bir Yuva (Turkey) and Molham Team (Syria). At 25 tracks deep, the first volume of the compilation covers a lot of musical ground, from modern coldwave music (Eva Geist's verging-on-anthemic 'No More Pain') to outright club material from the likes of rising talent Human Space Machine.

While the compilation may attract attention by way of international names, such as Alessandro Adriani and Curses, it shines thanks to the presence of many terrific Turkish artists (and regional friends). The rarely seen experimental musician Age Reform supplies a muted ambient piece, while YUKU-affiliate and Istanbul native Granul's heavyweight dance piece 'Remark' turns up the heat and the pressure. **FH**



THE NIGHT MONITOR

Close Encounters Of The Pennine Kind

FONOLITH

It's hard not to imagine Blackpool's Neil Scrivin sitting with a Minimoog on his knee, watching old VHS recordings of 'Arthur C Clarke's Mysterious World' on a never-ending loop. Previous albums have taken inspiration from the Enfield poltergeist and the dastardly occultism apparently practised in Sussex's Clapham Wood. Now, he turns his attention to a bizarre 1980 UFO encounter recalled by real-life PC Alan Godfrey under hypnosis – an account of his own terrifying alien abduction on a November morning in rural West Yorkshire.

Scrivin is clearly in thrall to the Radiophonic Workshop scores of Messrs Kingsland, Limb and Howell from the 1980s, and the results are splendid. The opening track, 'Window Area', is a swirl of ominous synths, 'Yosef' a squelchy tribute to the biblical alien who apparently transported Godfrey onboard a hovering spacecraft, while 'Robots' is a crunchy homage to the UFO's eight mechanical crew members, keeping the ship aloft above the outskirts of Todmorden. Set the controls for the heart of Stoodley Pike, it's all spendidly spooky fayre. **BF**

ULTRAMARINE

Send And Return

BLACKFORD HILL

"There's a very distinctive feel to the Blackwater Estuary," says Paul Hammond, one half of long-running English electronic duo Ultramarine alongside Ian Cooper. "It's almost Dickensian, a very quiet, rural area with mud flats everywhere – the river ended up seeping into our music." Recorded below deck in the wooden saloon of a sailing barge – the tracks are all named after Thames sailing barges – the atmosphere of the estuary trickles into every note on 'Send And Return'. But this is no languid ambient affair. There are field recordings of birds and Cooper's dog "jumping into the water", as the six tracks here thrum with low-key insistence.

Combining hypnotic jazz with electronics and textural soundscapes, it's a welcome return from the pair who first debuted with 'Folk' in 1990 on iconic Belgian label Les Disques Du Crépuscule. 'Hydrogen' is a dynamic interplay of pulsing electronica and taut percussion, and the darkly tinted 'Mirosa' would be right at home in the opening set of a dimly-lit nightclub. The quieter moments are equally mesmeric – on 'Xylonite', the wobble of a flute sounds uncannily like the call of a moorhen. A stunning study of contrasts. **CF**

RICHARD SKELTON

Selenodesy

PHANTOM LIMB

Richard Skelton's compositions are often concerned with confluences, and the creative impulse that prompted his latest album of soundscapes is no exception. A period of insomnia spurred an interest in the dark, uninterrupted night skies of Northumberland, which in turn led to the nearby Kielder Observatory's detailed study of our Moon – or selenodesy. The pieces here reside in those distant lunar details, constantly shifting from the Sun's reflected light to the enveloping darkness of space.

To describe a track like 'Faint Ray Systems' or 'Albedo' as being built from drones would do Skelton's work a disservice. These are tightly composed, almost symphonic structures filled with tension, restless textures and unfolding passages reminiscent of Morton Feldman. For the most part, the provenance of Skelton's sonic interventions are elusive and unknowable, but a burgeoning interest in electronics and synthesis reveals itself occasionally – on the slow-motion melodies of 'Impact Theory' and the wiry synths of 'Fallback'. Music worth staying awake for. **MS**

DEBBY FRIDAY

DEBBY FRIDAY
Good Luck
SUB POP

An artist signed to Sub Pop, with a cassette release called 'Bitchpunk' and who namechecks Death Grips has got be worth exploring, right? At first glance, Nigerian-born Canadian Debby Friday, who self-describes as a "club rat", seems about as far from Sub Pop's plaid-anger roots as you can get. But maybe within her bulbous electronic stompfodder and red alarm catastrophe-inducing sonics is a similar rage.

'Let U Down' has the kind of simple distorted bassline Krist Novoselic might have cranked out for Kurt to scream over. Guitars figure elsewhere, notably on 'What A Man', which has electric bass and a drinking club metal solo of dubious intent.

But don't be misled. This is mostly sonic fuckery of the electronic kind for Friday's lyrical delivery. The high points are the gorgeous 'So Hard To Tell' and 'Hot Love', a full-throttle fast-lane screamer. These tracks provide light relief from the fierce industrial darkness of the album's psychedelic violence. **MR**

SUKI SOU
Notes On Listening
CURIOUS MUSIC

On hearing the gorgeous bubbling retro synths that characterise 'Velocity Of Water', you'd be forgiven for thinking that this is some long-lost Suzanne Ciani composition. In fact, this piece, and the other six analogue-based tracks that make up 'Notes On Listening', are the stunning work of self-taught synthesiser sorceress Suki Sou. This, her debut album, is an homage to early electronic instruments – she employs a killer arsenal of iconic machines, including Buchla and Moog modular systems and ARP, Serge and Synthi gear – and pioneering producers like Ciani, Pauline Oliveros and Terry Riley.

Her home studio is in the Peak District, where nature also provides a major source of inspiration. On 'Petrichor', water trickles and thunder rumbles, while 'Particles Of Air' features mind-clearing, droning textures. There are vibrant kosmische moments, as on 'Rotating Currents' where Sou produces lively Harmonia-esque patterns. 'Notes On Listening' is a sensory delight throughout and a truly impressive statement from an artist with real star power. **CF**

VARIOUS ARTISTS
Random And Emblematic: The Sound Of Space
MODERN OBSCURE MUSIC

The parallels between architecture and music have often been made throughout history, yet rarely to such a high and exacting standard as this compilation through Modern Obscure Music. Gathering a worldwide cast, it features some of the greatest modern classical/ambient composers around today, including Felicia Atkinson, KMRU, Abul Mogard, Carmen Villain and Kuniyuki Takahashi.

What is most enjoyable about this release is the diversity on offer. Each soundscape is informed by a physical space, real or imagined. They're conjured in essence through a multitude of listening experiences that alter the physical realm they occupy, in much the same way as only the most poignant man-made landmarks can achieve. Within its warming embrace, Atkinson's 'Le Poème De L'Angle Droit' alludes to things hidden round the corner, and Takahashi's 'Moere' softly drifts into focus, a rising mist formed of droplets of field recordings and distilled productions. **FH**

JOHN FOXX

The Arcades Project / Avenham

METAMATIC

Elegant keyboard reflections from a master

Electronica's "quiet man" returns with his first solo piano work, which continues the blissfully abstract piano-based pieces he's made with Harold Budd and Ruben Garcia over the past two decades. This retreat into the quiet calm of minimalist neoclassicism feels just right after the raging synth noise of his last major album, 2020's 'Howl' as John Foxx And The Maths.

In an accompanying essay, Foxx himself explains that 'The Arcades Project' was part-inspired by flâneurism, a term coined by French poet Baudelaire and elucidated in a seminal text by Walter Benjamin which names the album. It sets out the ideas of a movement emerging in late 19th and early 20th century Paris, whereby the flâneur would walk the city and actively absorb the sights and scenes that revealed themselves. As Foxx puts it, "Drifting with the tides on the streets, taking great pleasure in a dreamlike state of coincidentalism – being open to all the unfolding daily events of a great modern city".

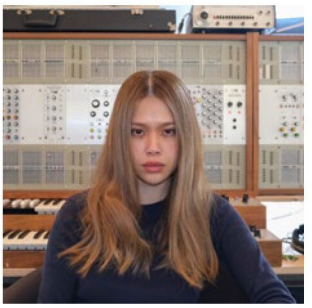
Foxx translates and interprets this sense of a wide-eyed renewal of perception with sublime congruence. His mission, with the aid of piano and some old analogue electronics, is to create "gestural fragments of music and atmosphere that might allude to some momentary experience – a chance meeting, a glimpse into a garden… a life behind a window revealed at twilight". It's a delicate, assuredly elegant and wistful masterwork that resounds with elegiac beauty and emotive substance, and in its reflections on mesmerising tracks like 'Starlit Summer Night' or 'Last Golden Light', crystalises something ineffable and achingly elusive.

And very much in parallel, Foxx has released a second work this month, which adds further substance to his unimpeachable ambient/classical canon. 'Avenham' takes hauntology – the more contemporary angle on flâneurism – as its vehicle to journey us in modernist Proustian fashion to a place Foxx knew as a young man. In true half or misremembered style, it's more than simply a location and is less defined and enigmatically mysterious. Foxx again puts it best: "It's a real place, that's also as mythical as the gates of Eden. So the music is likewise nebulous and impressionistic… the view from here is to a time which occurs in almost everyone's life, when the world becomes a radiant place of infinite mystery and promise."

Both these exceptional works confirm what many of us have felt for a while now, that Foxx's compositions surely stand on unequivocal terms with the work of avant-garde maestros like Roedelius, Satie or Harold Budd himself. Unmissable.

CARL GRIFFIN

Brief Encounters



Electronic composer and sound designer **Suki Sou** tackles our quick-fire questions

Hello Suki. Where are you right now and what can you see?
"Hey! I just accidentally baptised my studio decks with a tsunami of water here in the Peak District."

So, your parents sent you to boarding school in Berkshire, from China, on your own… aged eight. That shapes you, right?
"You know how humans care for their kids until they're 18? Giraffes have it figured out – 18 minutes and it's 'Get up and go!'. My boarding school experience was like a giraffe/human hybrid that laid the groundwork for my insatiable curiosity to explore the uncharted terrains of sound."

Your debut album, 'Notes On Listening', is born of a fascination with early electronic instruments…
"Early synths are like audio time-travel machines that let me zigzag through sonic dimensions while providing solace during moments of loneliness."

You list some serious influences – Riley, Ciani, Cluster, Spiegel… you're Electronic Sound personified!
"OMG, ES personification! Discovering these legends is a bit like stocking up a pantry with seasoning and herbs. Each of them offers a unique blend of notes, flavours, smells and textures that enhance and elevate the hue of my own compositions."

Michael Rother has also added his seal of approval. Wow, eh?
"His approval feels like a kosmische high-five. It's a humbling and invigorating experience that has given me a lot of motivation."

You say you're inspired by "the quotidian, the overlooked and the pleasurable" – give us an example?
"It never ends. Let's go… maybe the sounds of a Yorkshire pudding rising could remind you of the word 'auction'? Or John Lennon's voice feels like red cellophane, the type you get around toffee apples, and Brian Eno's 'An Ending' sounds like a slowly stretching ribbon of fresh butter that never slips off your knife…"

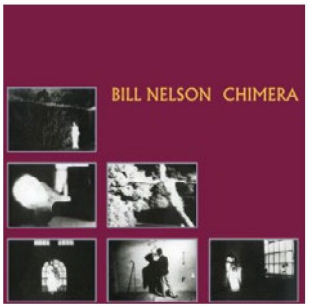
You also have synaesthesia – in what way does that affect your music-making?
"It's like having a built-in special effects team in my head! It's a wild ride and sometimes it can be a bit overwhelming, but I wouldn't trade it for anything."

The album has quite the analogue arsenal – Buchla, Moog, ARP, Serge, Synthi… you don't own all of them, do you?
"No, I don't own them. I had the privilege of using these incredible instruments at the Willem Twee Studios in the Netherlands, which is an amazing space filled with a vast collection of rare and vintage synths. I do however have the Buchla Easel, and I'm in the process of expanding that into my own Buchla 200e system."

What colour is Moog?
"The plummy sparkly electric colours you see when you press your fingers over your closed eyes, but it tastes like a velvety brie made from the milk of a powerful cow."

I think that's the best answer to a Brief Encounters question, ever.
"I enjoyed talking to you. Let's have dim sum next time. Goodbye."

Buried Treasure



BILL NELSON

Chimera

MERCURY, 1983

Say what you will about the rise of algorithms, but on occasion they do get it right. Somewhere between Michael Rother's 'Karussell' and a banger from Supermax, my streaming platform shuffled up something unfamiliar while I was en route to collect a takeaway.

Like most rock obsessives, I knew that Bill Nelson was the driving force behind Be-Bop Deluxe and a guitar god to (mostly) men of a certain age. My only experience with his work, however, was the uber-synthy single 'Flaming Desire', which would sometimes pop up well past midnight on the video programmes of the early 1980s. Fast forward several decades to the night of that burger run and I find that I'm suddenly enchanted by a slice of pop electronica that's equally catchy.

Originally released in 1983, 'Acceleration' was the second track on Nelson's 'Chimera' EP – a project that began life as a collaboration of sorts with the late Yellow Magic Orchestra drummer Yukihiro Takahashi.

Nelson's connection to Takahashi began some time after he was invited to guest on a session for guitarist Masami Tsuchiya, who was working on a record in the UK with some members of Japan.

Takahashi invited Nelson back to Japan to join the rest of YMO in the studio, and their creative bond began to set. The tapes the drummer later sent over to him had a kind of mechanistic drive, which slotted nicely alongside Kraftwerk and Telex, the type of European music Nelson talked about being into at that time.

Like Kraftwerk, he was able to rely on a Minimoog for pumping out uptempo basslines (albeit played without the use of a sequencer), but he was also very keen to add non-techno flavours to the mix. His ace marimba-playing is a feature of 'Everyday Feels Like Another New Drug', before he hands the solo section off to his late brother Ian, who added some tasty sax parts. And 'Glow World' sees a star turn on bass from Japan's Mick Karn.

Nelson even beat Paul Hardcastle's '19' to the punch when he cut a variety of samples into 'Hard Facts From The Fiction Department'. It's a clear nod to some of the early electro he was exposed to on a trip to New York.

As it turns out, some bright spark at his US label thought combining 'Chimera' with some previously released singles and album tracks might get Nelson his due in the American charts in 1984. It wasn't an entirely bad strategy, but at the time, radio's gaze was too drawn to the rise of indie to notice the 'Vistamix' compilation.

Nelson gave up performing live on his 70th birthday due to the onset of an eye condition called macular degeneration. His ailments aside, he doesn't seem concerned at all these days about whether he's breached his cult following. He's issued so much work in the past 40 years that Chimera' looks less like an artistic peak, more just another strong thread in the fabric of his career.

JOE SILVA

CHRIS & COSEY

Elemental 7 / Musik Fantastique! / Feral Vapours Of The Silver Ether

CTI

Veteran performers reissue three of the best

After 17 albums, plus seven more as CTI and four live LPs, Cosey Fanni Tutti and Chris Carter have outlived their former Throbbing Gristle comrades in creativity and mortality alike.

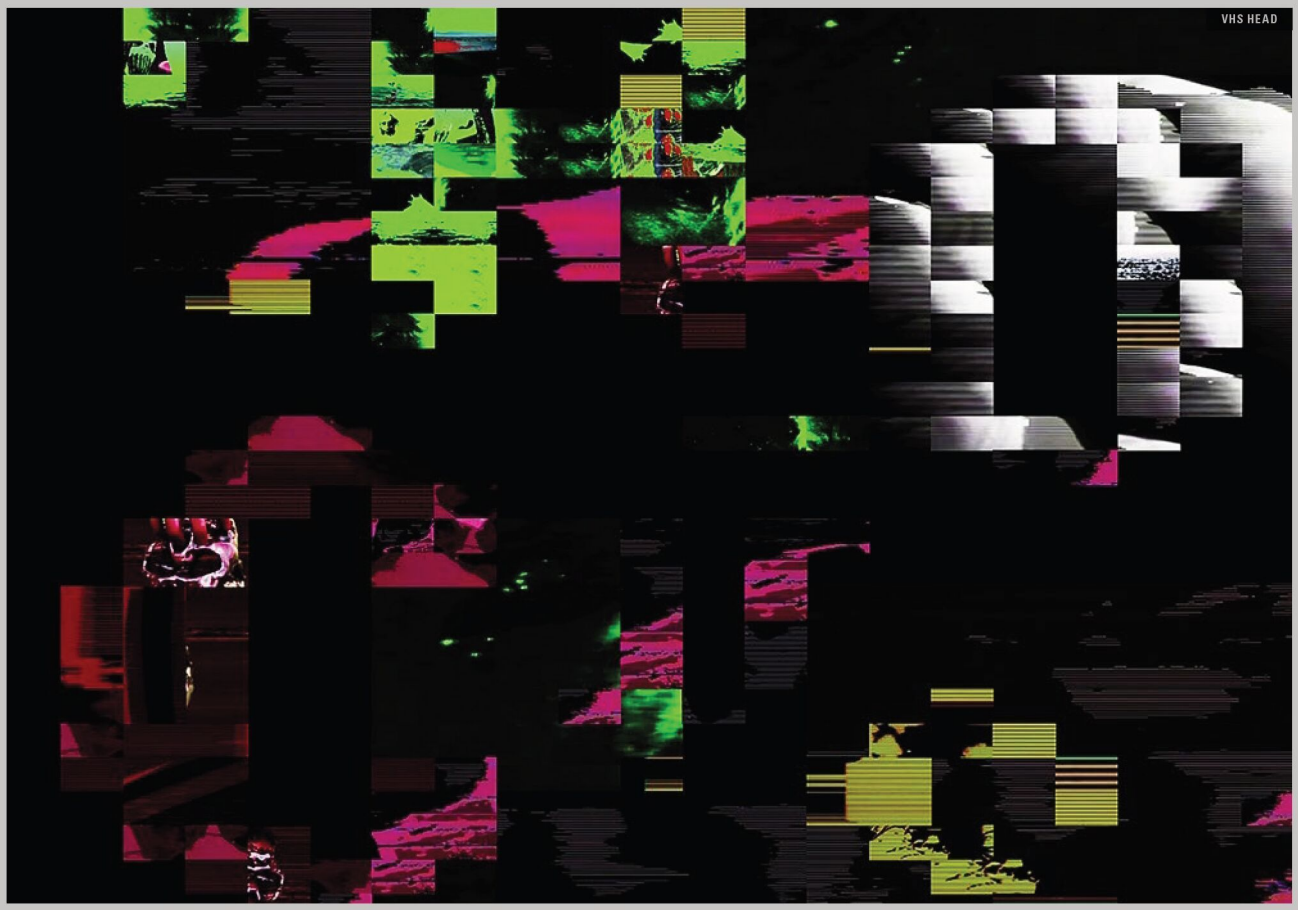
This coloured vinyl reissue series picks three very different albums from different decades. 'Elemental 7' from 1984 was originally a CTI soundtrack for a release on Cabaret Voltaire's video label Doublevision, but it's rightly picked out as it marks the duo's first proto-techno work after the more synthpop strains of their first four LPs for Rough Trade. The bubbly sequences of the opening track, 'Dancing Ghosts', have clearly been an influence on everyone from the Cabs and Depeche Mode to early British acid house artists like Baby Ford and Mark Moore, an avowed fan. Its simplicity – the killer bassline teasingly disappearing and reappearing time after time – and lack of gadgetry mean it sounds like it could have been made literally yesterday. In turn, 'Temple Bar' borrows from the disorientating, dislocated sonics of Delia Derbyshire's series 'The Dreams', and like significant parts of the album is more conventionally – if wonderfully – soundtracky. Two exceptions are the mangled guitars and drum machine of 'The Final Calling' and 'Sidereal', which feels like a stripped down cousin to 'My Life In The Bush Of Ghosts', with its hypnotic looping.

Nine years later and we're onto 1993's 'Musik Fantastique'. Kicking-off with the polish and sonic sparsity of 'Fantastique' and the thumpier 'Sound Of Sound', it has one foot in the experiments of Yello and Kraftwerk and the other in the trance-like states of Fluke or Underworld. Not content to stick there, though, 'Apocalypso' has a Middle Eastern flavour, 'Afrakira' is a tribal drum workout with Tutti seemingly casting an incantation, and 'Visions Love' a slow-motion house cut, her vocals reminiscent of Siouxsie Sioux's gothic grandeur.

'Feral Vapours Of The Silver Ether' from 2007 completes the set, the most intimate of the three with Cosey's vocals close-up and pure rather than removed and effects-laden. 'Acid Tongue' is a masterpiece, like a world-weary retort to TG's famous 'United'. Whether it's the piano on 'Torn Window' or the slippery zither on 'Woven Clouds', there's less and less emphasis on trickery and more on emotion and songwriting.

Examining all three together is a bit like looking at concentric rings on a felled tree – the passage of time is clear, but so is the bond that underpins all three separate works. Take your pick – they're all excellent, of course.

BEN WILLMOTT



VHS HEAD
Phocus
SKAM

Where previous VHS Head releases have growled out an aggressive mixture of B-movie sonics and dense electronics, 'Phocus' arranges samples more delicately so that air gets into the spaces between its swaggering analogue groove. Rather than diluting the intensity, this breathing space makes this record the most compelling iteration of Ade Blacow's idiosyncratic aesthetic.

Looting a considerable collection of video cassettes for suitable snippets, earlier records have seen the Blackpool musician build heavy soundscapes of heaving neon electronics. Here, his rolling samples register closer to the work of Vicki Bennett's 'People Like Us', full of odd juxtapositions which cause a kind of cognitive dissonance; 'Strange Tangents' mixes the crumpled radiance of some half-remembered ident with unexpected Speak & Spell chatter, while 'Fake Sweat' lurches treacle-slurred dialogue beneath righteous synth bounce, like a 1980s slasher movie where the baddie suddenly test-drives a Porsche.

The granular growl of Blacow's earlier work remains, but it's delivered with a sense of balance and restraint which only sharpens its bite. **ST**

TIM HECKER
No Highs
KRANKY

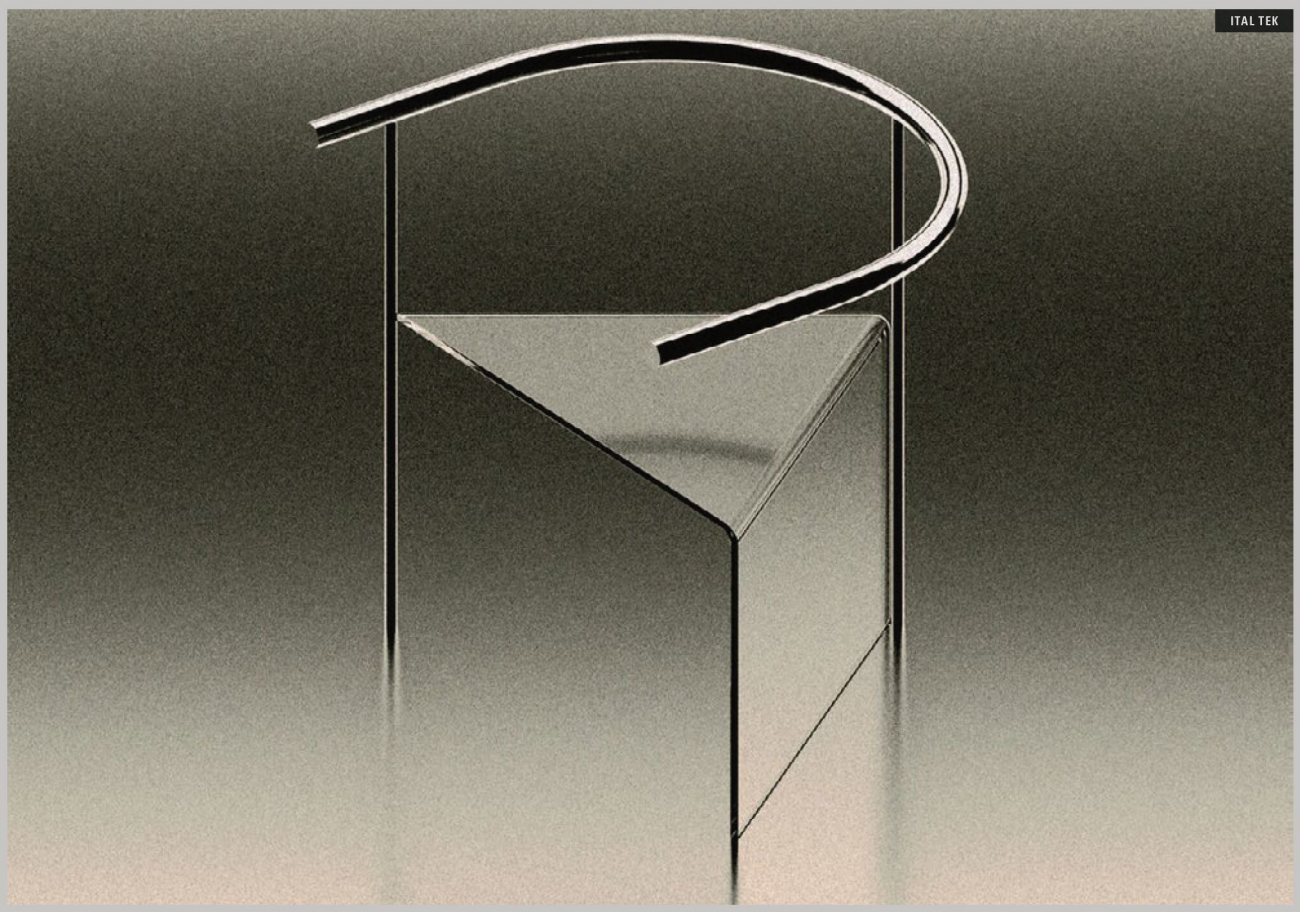
After more than a decade of releasing music, Tim Hecker is a name that comes stapled to the front of every experimental ambient music starter pack. 'No Highs' sets its position in this field from the outset. Ideologically distinct from the swathes of pleasant but ultimately facile ambient music, dubbed "false positive corporate ambient" with not a small tinge of disdain, the Canadian's latest is roughly shaped and darkly hued, the antithesis of empty warmth and hopeless positivity.

The album isn't all sharp edges, though. 'Monotony II' shares some promise of the future through the softly cascading saxophone, but it does so in a manner that contains nuanced thought rather than outright beaming smiles, and this is the essence of Hecker's latest venture. It's a determined investigation into the endless scale of emotion, rather than merely its polarised peaks. If 'No Highs' says just one thing, it would be that it takes more than the sun to make a rainbow. **FH**

JOSEPHINE FOSTER
Domestic Sphere
FIRE

It's just Josephine Foster. With an electric guitar. Oh, and wailing cats, Tennessee birdsong and the spectral voice of her late, great-grandmother. Foster's ninth album for Fire still sounds like battered, Depression-era shellac spinning on a wind-up gramophone in a flyblown desert shack.

Surrounded by chirruping crickets, her tremulous voice lures us into the jaded romance of 'Pendulum': "Gone are the candles, gone are the fires / Gone is the spring of our desire". Oh well, there's always a quiet night in playing KerPlunk. There's genuine longing here, though. "If I gave you a dollar you'd give me a dime / You'd kiss me in the morning, I'd kiss you all the time," she sings on 'Gentlemen & Ladies', her fractured vocal acrobatics taking on almost theremin-like qualities. And 'Reminiscence' is that hair-raising cross-generational duet, Foster harmonising in genuinely haunting fashion with a crackly recording of her great-grandmother Filomena Maltese, born in 1893. The perfect embodiment of an album that feels like a lost, faded missive from an older, stranger America. **BF**



ITAL TEK

Timeproof

PLANET MU

Time flies. It seems like only yesterday that Ital Tek (aka Alan Myson) turned up on our hard drives with his skittery, hard-to-pin-down footwork rhythms and glitchy synths. Yet here we are at album number eight from the Brighton producer, with 'Timeproof' aptly enough inspired by "how distorted the perception of time is in the creative headspace".

There's certainly been a seismic shift in his sound since 2008's 'Cyclical', with 'Timeproof' almost certainly his most direct. 'Phantom Pain' opens the album in incendiary style, everything on the edge of distortion, steady rhythms holding layers of constantly switching sound. 'Staggered' follows, as gentle as its predecessor was gnarly, a handful of simple notes lulling us into a false sense of security before the tense dubstep speed of 'The Mirror' hits – it's about as close to Black Sabbath as electronic music ever got.

Elsewhere, hovering choirs, restless arpeggios and Black Dog-style beats make 'Zero Point' an essential cog. Single, blazingly distorted notes define 'Cold Motion', and the title track closes proceedings like an explosion witnessed in slow motion. Well worth your time. **BW**

VARIOUS ARTISTS

Tone Science Module No 7: Cause And Effect

DIN

Another year brings another DiN compilation, showcasing the breadth and variety of music created with modular synths – a further nine pieces that run the gamut from creepy and alarming to soft and soothing. All, in varying degrees, are strange and wonderful.

Andrew Ostler's 'Hecataea' burbles and pulsates, gathering force before reaching its crescendo. 'Flutter' by Dark Sparkler sounds custom-built for the sci-fi soundtrack of your nightmares. 'Of Ash And Sorrow' by Blakmoth introduces us to what could be styled "gothic ambient" – dark, foreboding and full of dread. Brendan Pollard's 'Pareidolia' throbs and echoes as if adrift in space. And Jon Palmer's 'Near Earth' resembles a satellite's decaying signal before its final descent to Earth… you get the picture.

The tracks vary in texture and timbre, but the quality is consistently high and the rich seam of ambient synth music that this series continues to unearth shows no sign of running dry. **WS**

HARALD GROSSKOPF

Oceanheart + Oceanheart Revisited

BUREAU B

Harald Grosskopf is one of the great unsung heroes of kosmische musik. He drummed with Ashra (and briefly with their forerunners Ash Ra Tempel), as well as for Klaus Schulze in his purple patch

Best-known for his moody Minimoog solo album 'Synthesist' from 1980, Grosskopf has continued to make electronic albums sporadically, including his Sky Records follow-up 'Oceanheart' from 1986. RVNG Intl tracked Grosskopf down to reissue 'Synthesist' in 2011, and 12 years later it's Bureau B's turn, with label owner Gunther Buskies convincing the musician to record an accompanying disc of remixes as 'Oceanheart Revisited'.

It's certainly a novel idea and welcome, although one of the great revelations is how contemporary and vital the original sounds. Many artists would give their eye teeth to make a track like 'Eve On The Hill' today, and spend silly money on analogue equipment to recreate the sound. So the 'Revisited' updates, though bolstering textures and generally consolidating, don't add a great deal to a record which was so luminescent in the first place. **JA**

NATHAN FAKE

Crystal Vision

CAMBRIA INSTRUMENTS

Fuzzy ambient melody turns eclectic

You can't beat a good arpeggio. I have them every day, in my coffee, on my chips. It's one of many kinetic synth tricks that makes 'Crystal Vision' an even bigger slap in the chops than 2020's brilliant 'Blizzards'.

Fake is well-accustomed to whipping up a fuzzy storm of ambient melody. 'Crystal Vision' punches up that atmosphere with drum patterns tasered into glorious torment. Bravado electro underpins the cubic melody of 'Vimana', while the fondue-glooped breakbeats of the IDM-ish 'Crystal Vision' are as robust as anything Fake has done. He even takes on Autechre on 'Boss Core', its shuffling Boss DR550 beats inspired by 'Vose In' on 'LP5'.

The seething, bleeping heart of this work can be felt in its brace of guest vocalists. They're placed at either end of the tracklisting, as if on separate naughty steps. Warp's mournful maestro Clark pops up on the arpeggio aperitif 'Outsider'. So many of the album's chunkiest tracks melt into euphoria, and these scorching emotional chords are no exception. In fact, so much of 'Crystal Vision' feels like the best moments of Clark's 'Growls Garden's. Then there's Virginia vocalist Wizard Apprentice on the frenzied elegance of 'The Grass'. Their evocation of rituals in nature brings a folkish earthiness that never quite leaves us. That's despite much of the ambience actually sounding rather metallic and industrial, such as on the midpoint interlude 'CMD'.

'Crystal's highlight comes from left field. In the past, when Fake has been scrambling for a musical climax, I've been cheerleading from the side, wanting the beats to drop deeper, the techno to slam harder. After a teaser of rolling breaks on the weightless 'Bibled', the penultimate track 'AMEN 96' finally sends things over the edge. This is Fake "having a go at jungle". And boy, does he have a go. The titular break juxtaposes itself as spatters of filtered drums against pristine ambience before bursting into phosphorescent flares of spasming rhythm. With the rise of acts like Nia Archives, he's never sounded more on point. Never mind just the arpeggios – I'll have everything on my cornflakes, thank you very much.

FAT ROLAND

Label Profile

Label: Cruel Nature
Location: Morpeth, Northumberland
Est: 2013

Potted History: "Cruel Nature is run by me," explains founder Steve Strode. "I've been involved with underground music for over 30 years, always taking a DIY approach – self-releasing sounds, playing in bands, promoting shows and co-running the Distraction Records label in the early 2000s. For Cruel Nature, I settled on cassettes as a physical format because I grew up with cassette culture. I like the organic depth you get from a cassette.

"For the first three years of the label, I was buying blank cassettes and cases online, and home-dubbing the audio using a rack of Technics tape decks all daisy-chained together in the front room. I had the inlays and labels produced at the local print shop, and I hand-assembled everything on the kitchen table. As the frequency of the releases and number of copies started to increase, this process just wasn't physically possible anymore. Now, everything is professionally produced and I'm at 255 releases, publishing up to six titles a month."

Mission Statement: "With Cruel Nature, I wanted to establish something that would allow me to publish diverse sounds that are not genre or location-specific," says Strode. "I can take risks with what I release, giving artists an opportunity to get their work out on a physical format. The aim of the label is to provide a platform for new artists, irrespective of location, complemented by releases from already established acts."

Key Artists & Releases: "One of the most prolific and creative artists involved with the label is Chris Tate, who's released seven albums with us under his solo project, Score. There's also his US/UK collaboration, Salisman, and One Key Magic, a project with political geographer Michael Mulvihill, which explores the electronic phenomenon produced by RAF Fylingdales, a Ballistic Missile Early Warning station on the edge of the North York Moors.

"I also have to give a shout-out to James Watts, who aside from being my go-to artwork designer for the past seven years, is also a productive musician. He plays in a multitude of bands, who've all found a home with Cruel Nature."

Future Plans: "On 20 April, Cruel Nature celebrates its 10th birthday – a decade of channelling sonic diversity. We're celebrating the occasion by releasing 'Spectrum', a double album compilation. We have a busy schedule for the rest of 2023, featuring new works from established artists such as Pound Land, Whirling Hall Of Knives, Aidan Baker, David Colohan, Clara Engel and Charlie Butler, along with new material from Gvantsa Narim. We're also welcoming Latvian artist Waterflower to the roster. Exciting stuff!"

Any Other Business? "It's important to me to let the artists have full creative control over their work, from the inlay art and design to the colour of the cassette shell. In some cases, they might just provide the sounds and leave the packaging and design to me, but it's always a fully collaborative process throughout."

For more, see cruelnaturerecordings.bandcamp.com

First And Last And Always

The Heartwood Institute's **Jonathan Sharp** on the first and last records he bought, plus a go-to album

FIRST

HELDON

Heldon IV "Agneta Nilsson"

URUS, 1976

"Probably not the first album I bought, but certainly one of the first purely electronic ones. I'd never heard anything like it before. Up to that point, I didn't realise electronics could sound so heavy, cold and dark. This isn't polite, trippy space music – it's genuinely angry. Importantly, it set me on the path to industrial music, leading me into bands like Skinny Puppy and The Young Gods."

LAST

CRISTOBAL TAPIA DE VEER

Smile (Music From The Motion Picture)

DEATH WALTZ RECORDING COMPANY, 2023

"I listen to a lot of horror soundtracks, but for me, Cristobal Tapia De Veer is way out there beyond anyone else. He really pushes the boundaries of what constitutes a score – parts of this soundtrack you can barely describe as music in a conventional sense. The sound design is genuinely mind-blowing. Listened to out of the context of the film, this is utterly terrifying audio."

ALWAYS

POPOL VUH

In The Gardens Of Pharao / Aguirre

CELESTIAL HARMONIES, 1983

"Florian Fricke made the most transcendent, glorious music. I'm drawn to the soundtracks he did for Werner Herzog's films. 'Nosferatu' is amazing, but it's 'Aguirre' from 'Aguirre, The Wrath Of God' for me, always. Particularly the scene where Klaus Kinski [as Lope De Aguirre] and the conquistadors come down the mountain t o the most truly angelic music. Stunning. This particular LP was my introduction to Fricke – once heard, never forgotten."

FEVER RAY

Radical Romantics

MUTE

Sonic adventurer Karin Dreijer returns

When did being in love become so… stifled? In the digital age, we've never been more connected, but at the same time our capacity for real communication feels diminished. Social media is flooded with advice on attachment theory, compatibility between moon signs and relationship pop-psychology, yet there is a sort of unspoken agreement that when it comes to matters of the heart, it's best to keep your cards close to your chest.

Thank heavens, then, for Fever Ray. Though Karin Dreijer might be notoriously press-shy, the Swedish artist has always channelled a heart-on-sleeve level of emotion that never fails to strike a chord.

As one half of The Knife with brother Olof, their 2002 hit 'Heartbeats' remains an electropop classic, a traditional love song couched in Dreijer's unique and uncannily timeless aesthetic. Fast-forward two decades and with 'Radical Romantics', Dreijer's third solo album as Fever Ray, they are still willing to go further than most into the depths of what it means to love, and be loved.

Take 'Shiver', where Dreijer's unmistakable voice rings out with the lines, "I just want to be touched / I just want to shiver". The slow-burning track is as captivating and emotive as ever, and will resonate with anyone who knows what it's like to feel lovesick. Like all of the songs on 'Radical Romantics', it can be read from varying perspectives, underscoring the non-heteronormative, queer lens that Dreijer has increasingly applied to their songwriting in recent years. Similarly, the haunting opener, 'What They Call Us' (co-written with Olof and the most The Knife-sounding moment on the album), comes from what they have described as "a very queer perspective".

This is a record that's thoughtful and theoretical as much as it is intuitive and unfeigned. But there are plenty of joyous moments, as on the squelchy, irresistible and Gary Numan-esque 'Even It Out', which features Nine Inch Nails' Trent Reznor and Atticus Ross.

On the throbbing, symphonic standout 'Carbon Dioxide', with English producer Vessel, Dreijer "wanted to describe the feeling of falling in love". Alongside references to Henry Mancini and writer Anne Morrow Lindbergh, they call on a Bible passage from Corinthians 13:1 – "If I speak in the tongues of men and of angels, but have not love, I am a noisy gong or a clanging cymbal". Reverent, radical and all shades in between, Fever Ray's latest sermon encourages us to open our hearts to the possibilities of love. Amen to that.

CLAIRE FRANCIS

DAVID SYLVIAN & STEPHAN MATHIEU

DAVID SYLVIAN & STEPHAN MATHIEU

Wandermüde

GRÖNLAND

Inhabiting a fascinatingly liminal space between dark and light ambient, and issued on vinyl for the first time, this soaring remix of David Sylvian's 2003 album 'Blemish' is one of those rare things – a remaster that adds genuine magic dust and is entirely worthwhile.

Renowned German audio engineer and long-time Sylvian collaborator, Stephan Mathieu reinvigorated the ex-Japan frontman's original work in real time in the studio, and though some sequences are heavily treated and refined, he didn't allowed multitracking or re-editing, so you get the sense that something thrillingly instinctive took place.

Tracks like 'Saffron Laudanum' or 'The Farther Away I Am (Minus 30 Degrees)' have such a celestial yet elemental quality to them, you feel you're being enveloped in the nebulous ether of deep space. Elsewhere, 'Trauma Ward' is given a lighter, near-vaporous feel by Mathieu, reminiscent of the opening moments of Talk Talk's 'Spirit Of Eden' in its echoing, half-speed, densely processed brass textures. It's all exceptional though, and deserves to be revelled in. **CG**

GOGO PENGUIN

Everything Is Going To Be OK

SONY / XXIM

Last year's 'Between Two Waves' EP marked a moment of transition for GoGo Penguin. It was the first release with a new drummer Jon Scott and the first to fully embrace electronics. Until that point, the band had used synths and software to write their tracks, which they would then recreate acoustically. Written during a period of loss and grief, 'Everything Is Going To Be OK' follows the new creative path established with that EP.

Their new-found freedom has resulted in prominent electronics weaving their way round Chris Illingworth's piano and Nick Blacka's expressive, springy bass. 'Soon Comes Night' begins with a synth that sounds like a bouncing tennis ball, offsetting Illingworth's joyous ivory-tickling, a dubby bassline from Nick Blacka and a distorted breakbeat from Scott. The final track, 'Sanctuary', is like a form of closure, built from delicate piano and inchoate sounds loaded with a sense of reassuring acceptance. Taken as a whole, 'Everything Is Going To Be OK' heralds an exciting new pathway for this innovative trio. **MS**

LAGOSS & BANHA DA COBRA

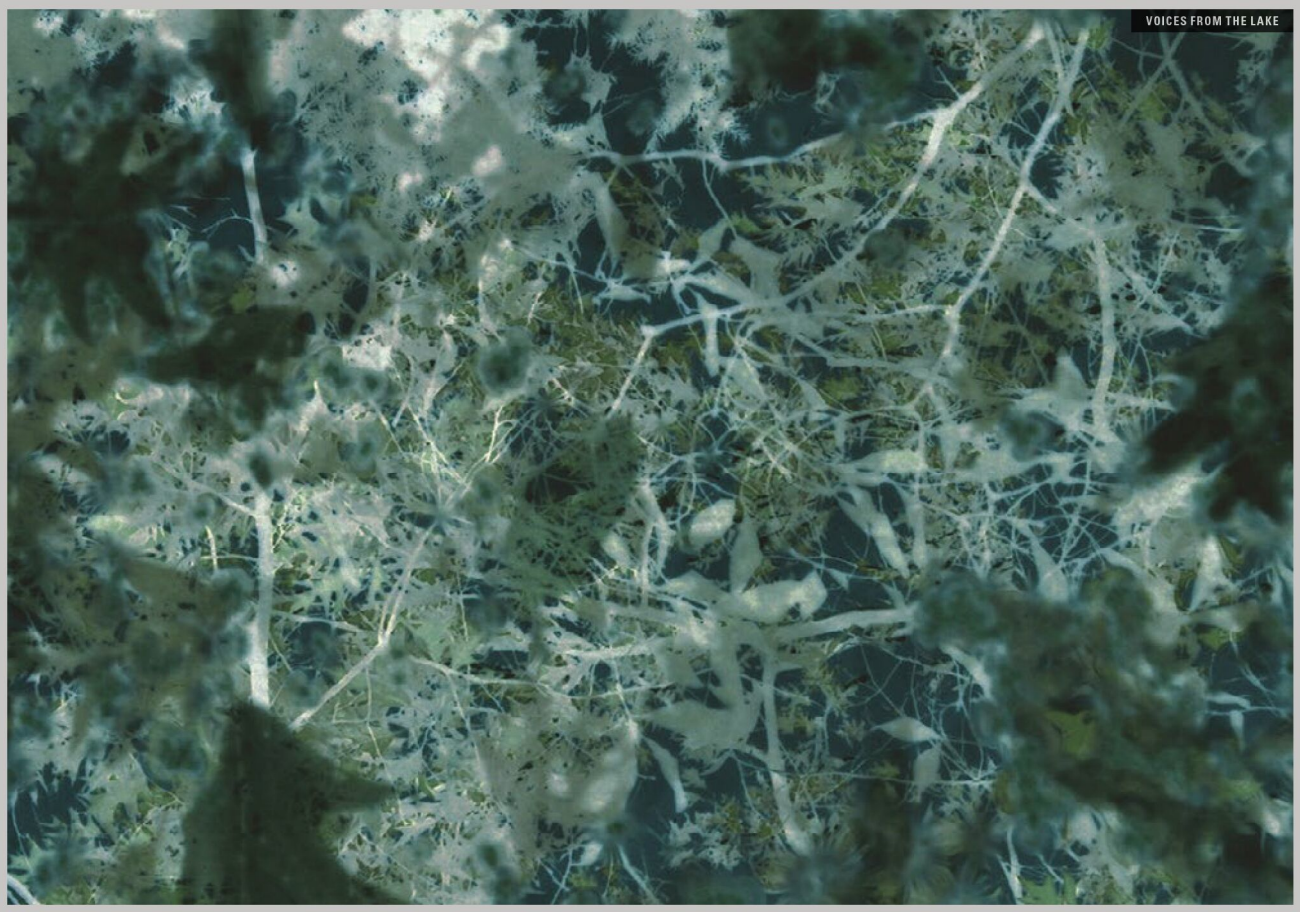
Aquapelagos Vol 1: Atlántico

DISCREPANT

Coined by the Australian researcher Philip Hayward, the term "aquapelago" refers to the unique aquatic qualities shared by islands, archipelagos and marine environments. Following their 2022 anthology exploring the concept, Discrepant have released a collection of pieces which focus specifically on the aquapelagos of the Atlantic Ocean.

The first side is provided by Lagoss, a collaboration between Mladen Kurajica, Daniel García and Discrepant label boss Gonçalo F Cardoso. 'Baía Do Papagaio' sets up waves of salty chimes which bleed into 'Alegranza Jingle', an uncanny swathe of backwards synth which recalls the watery claustrophobia of Boards Of Canada's 'Dandelion'.

The second side comes from Banha Da Cobra, the duo of Carlos Godinho and Mestre André. While their pieces are filled with a similarly briny creepiness, they're more subtle. 'Mojo Rojo' is all echo and ambience, like the sound of dripping water bouncing around a sea cave, while 'Dragos' is the closest these recordings ever come to those old ethnomusicology albums, exotic percussion dancing around hypnotic vocalisations. **ST**



VOICES FROM THE LAKE

Voices From The Lake

SPAZIO DISPONIBILE

This modern classic gets a long-awaited reissue – and about time too. The debut self-titled album by Voices From The Lake (the Italian duo of Donato Dozzy and Neel) has a well-known backstory. The pair performed a live show at the famed Labyrinth festival in Japan in 2011, which gave rise to this now-seminal hypnotic techno record. To mark its 10th anniversary, this re-release comes fully remastered across a four-vinyl LP set.

And what a sublime, absorbing listening experience it is, from the steady opening flutterings of 'Iyo' through to the euphoric chords of 'Circe & ST (VFTL Rework)' and the mesmeric percussive pull of 'Meikyu'.

Each track is meticulously crafted, and together they form a masterclass in musical storytelling, unfolding slowly and with perfect tension. It's the kind of album that makes a captivating companion for long train journeys – plug in and lose yourself in the meditative, dubby ambient textures. Utterly essential. **CF**

MARCEL KING

Reach For Love: Singles 1983-88

FACTORY BENELUX

Sift through Factory Records' catalogue numbers and you'll find FAC 92, a Marcel King single called 'Reach For Love' that's just one number below FAC 93, New Order's 'Confusion'. Barely a cigarette paper to separate them.

Recorded with Bernard Sumner and A Certain Ratio's Donald Johnson, the track bombed, despite King being the falsetto lead of Sweet Sensation, the UK soul group who went from appearing on the ITV talent show 'New Faces' to topping the UK charts with 'Sad Sweet Dreamer' in 1974. And despite its liquid bass, Factory-branded guitar jangles and soaring vocals. "Deeep insiiiide!"

As well as 'Reach For Love', this collection includes the spangly brass jam 'Hollywood Nights', a 1985 single on Debut Edge, the label that also brought us Candy Flip. There's 'Keep On Dancin' too, the B-side of FAC 92, a track perhaps too 70s for the bouffanted 80s. As Manchester sensations go, King sadly left behind a limited number of recordings when he died in 1995, which explains the remixes dominating the disc's second half. That doesn't stop him being a singular talent and Factory's most overlooked artist, though. **FR**

HIGH SEASON

The Call

PERMANENT VACATION

This collaboration between Parisienne DJ Chloé Thévenin and Ben Shemie of Suuns has a hazy, late hours feel to it, full of minor key melodies, moody vocal sounds and gently burbling synth patterns. Those of us who remember the early 1990s may be reminded of what used to be called progressive house – early Leftfield, Guerrilla Records and their associates. Certainly the longer tracks here like 'Way Far' and 'Minor Blues' are utterly engrossing – you'd describe them as trancey, if that word hadn't become so debased over the years. But Thévenin and Shemie aren't afraid to get experimental either. 'Compact' is merely a juddering drum pattern with vocal shards scattered like debris.

They could have spared us the self-referential snippets dotted through the running order that feature the pair analysing their own work, or deliberating on which card to pick out on the self-explanatory 'Stratégies Obliques'. The music itself – dark-hued, mesmerising and absorbing – is more than enough. **WS**

PENELOPE TRAPPES

Heavenly Spheres

NITE HIVE

Gothic textures and vocal wizardry

Let's start at the end of this intoxicating, atmospheric beauty. 'Pearl', the final track of Penelope Trappes' 'Heavenly Spheres', has so few ingredients of such simplicity that on paper it should be a mere curio. And yet, this basic stuff – the on/off clank of a German reel-to-reel tape, a curious jangle of shells, a scratchy blanket of tape hiss, punctuated with occasional heavenly hums – is deployed with such skill that 'Pearl' transcends its deceptively uncomplicated component parts to evoke the spirit of some barely suppressed Victorian attic horror.

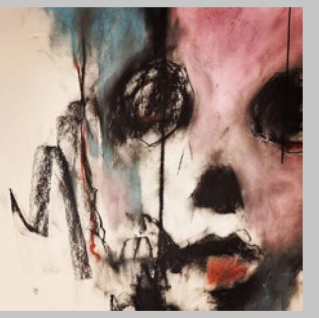
The first release on Trappes' new imprint, Nite Hive, 'Heavenly Spheres' showcases a starker, more focused, more pastoral artist than the one which created the self-contained trilogy that discreetly announced this major talent ('Penelope One', '…Two' and '…Three'). And, it's a world away from the urban fripperies of 'Penelope Redeux', the reworking of 'Penelope Two' by the likes of Cosey Fanni Tutti, Mogwai and Nik Colk Void.

On Trappes' fourth proper album (recorded in Aldeburgh, Suffolk during a two-week residency at the house of Imogen Holst, a composer, teacher and musicologist who is also the daughter of Gustav Holst, composer of 'The Planets'), this Australian-born vocalist and ethereal sonic explorer utilises a smaller palette than previously. It's a record comprised of gothic textures, heavily reverbed non-verbal vocals, and Harold Budd-esque minimalist upright piano, all blended to quietly devastating effect. Even the rural evocations in the use of birdsong on 'Away From Tidal Waves' serve to heighten, rather than diminish, the sense of creeping doom.

Her background in church choirs and training in opera appears to have given Trappes a freedom to explore the potential of her voice way beyond singing or vocalisation, and even beyond using her voice as an instrument. With this album, her voice becomes a wellspring of sound to be channelled, stretched and twisted at will, in such a way that surprisingly always manages to sound organic. The title track is built on what sounds like alien radio static and layers of stretched vocals, some contorted and robbed of their humanity, others warm, yet disquieting.

Penelope Trappes has created a stunning album of music and sound art, redolent of the eerier corners of This Mortal Coil's trio of albums for 4AD. 'Heavenly Spheres' is the sound of dust motes momentarily caught in a shaft of moonlight, of spirits pushing through from another realm. Alluring yet unsettling.

ANTHONY THORNTON



VARIOUS ARTISTS

Spectrum

CRUEL NATURE

Eclectic cassette imprint turns 10

Three characteristics have defined Cruel Nature since Steve Strode founded the label in 2013. The first is an unswerving devotion to the humble tape, with the imprint playing a significant role in the ongoing renaissance of the ferric format. The second is a philanthropic focus on charity, with proceeds from many releases being donated to a specific cause or organisation. The third is an unbridled eclecticism, an approach that's ensured a broadminded attitude to the 250 releases so far. All three of these defining facets are clearly visible on 'Spectrum', a 23-track, two-hour release issued to celebrate Cruel Nature's 10th year at the coalface of contemporary cassette culture.

The title of the album is both a reference to the label's wide-ranging roster, and to the spectrum conditions of autism and ADHD which Strode's son, also born in 2013, was diagnosed with. Proceeds from this collection will go to the Toby Henderson Trust, a charity supporting parents and carers of children with these characteristics.

'Spectrum' covers everything from sludgy death metal through to crunchy industrial techno, improvised vocal jazz and moments of sublime and beautiful levity. Nathalie Stern's 'One By One By Two' pairs organ and whispered voices to evoke the atmosphere of a church confession. 'Eagle's Splendour' by Charlie Butler has a gentle haziness that feels like trying to grasp at a fading memory. Gvantsa Narim's 'Sitkboeba' is a heavenly, meditative soundscape dotted with tiny melodic gestures and snatches of voice.

At the darker end of the spectrum, 'TV Phase' by K Of ARC finds metronomic percussion offsetting a shadowy cloud formation of heavy, cloying drones. Elsewhere, 'Flies' by Pound Land taps into intense fears of death, paranoia and anxiety over a wiry, distorted dirge that perfectly reflects back the abject panic contained in the spoken word delivery.

Ten years in, and Cruel Nature continues to offer a defiant, wilfully different approach to its release schedule. As St James Infirmary put it on the opening track, 'Something For You', a wonky, lightly Auto-Tuned love letter to the label and to the excitement of taking delivery of a new batch of cassettes, "There's always something in the box that's really great".

MAT SMITH

REVIEWS BY
JEREMY ALLEN,
BOB FISCHER,
CLAIRE FRANCIS,
CARL GRIFFIN,
FREDDIE HUDSON,
FAT ROLAND,
MARK ROLAND,
WILL SIMPSON
JOE SILVA,
MAT SMITH,
ANTHONY THORNTON,
SPENSER TOMSON,
BEN WILLMOTT

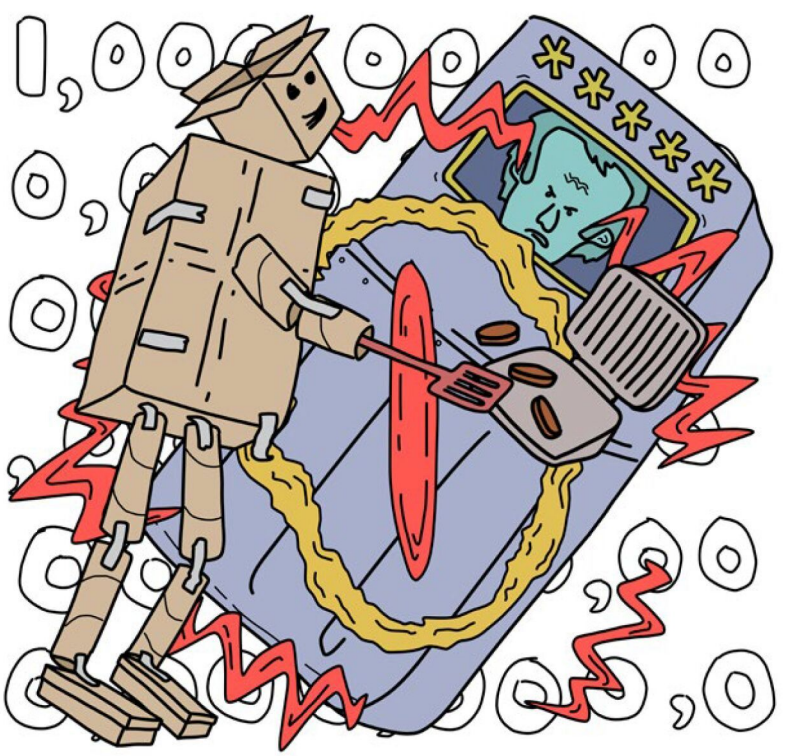
BANGING ON

On this, the occasion of our 100th issue (just for the absence of doubt), our fourth favourite columnist considers the future of magazines. Well, when we say "considers"...

WORDS AND PICTURE: FAT ROLAND

Me and all the other writer gerbils at Electronic Sound are proud to present our 1,000th issue. It's a testament to our disgusting talent and/or automatic writing software that this mag is still pumping things out at issue number 100,000. Seems like only yesterday when ES was born in a glorious splatter of creativity, like a manatee giving birth to a stork. And now, here we are – issue number 10 million.

I didn't apply to Electronic Sound like a normal job. I don't even have a curriculum vitae because I am, technically, entirely illiterate. ES discovered me in a cave, where I looked after precious things in the shadow of the Misty Mountains. Their editor Bilbo – er, hold on, that might be copyrighted. Their editor Milbo Maggins invited me on a quest to defeat the evil, er, Mauron by producing a monthly magazine dedicated to electronic music.



Turns out, I was a bit of a trickster, and talking to two sides of myself in a puddle was, frankly, a bit melodramatic. And my voice was annoying. And the end of the third film went on forever – what was Peter Jackson thinking?! Sorry, lost my train of thought for a moment. The magazine invited me to erect a column every month, the results of which are pleasuring you this very moment.

Print magazines are useful for pop gossip, not like the internet, which famously contains no unfounded speculation at all. For example, do you know Bryan Ferry's biggest allergy (ferries)? Do you know The Jam's favourite jarred fruit preserve (marmalade)? And which member of Duran Duran is secretly a pretend robot made of toilet rolls and gaffer tape (note to self – google the names of Duran Duran, but it's probably Susan or something)? Now it's in print, that nonsense I just made up can become fact on Wikipedia.

Magazines are brilliant. I loved Smash Hits, which was made of instant mash. And Medley Maker, which was just a mix of all the other magazines. Then there was Q, which only contained the letter Q due to a typing error. A difficult read.

My tenure at Electronic Sound is the longest job I've ever had. My shortest job was as shelf stacker at a shelf-selling company. I lost track of which shelves were for selling and which shelves were shelves to shelve the shelves we were selling. So I sold all the shelves and they couldn't shelve anything, so they shelved my employment. There was also that huge misunderstanding on my first day as a Beefeater. Turns out, at the Tower of London, there's nowhere to plug in a George Foreman Grill. Complete waste of time. See what I did there? You can write anything in magazines. It's ridiculous.

Who knows where we will be in a billion issues' time? I think electronic music will be history. All instruments will be made of twigs and disappointment. The only pop star will be a cryogenically pickled Sting. Spotify will have been replaced by a cheese grater to be applied directly to musicians' faces.

And Electronic Sound will be compulsory by law. Each new mag will be stapled to your eyeballs, while a nitrogen-cracked Sting looms menacingly, testing you on every word you read. Who was Delia Derbyshire's favourite member of BTS? Think! It was on page 27. No, not Jungkook, you idiot. It's obviously J-Hope because he does mix tapes and Delia liked tapes. Stand still while we punish you. Cardboard Susan Le Bon (note to self – google it), fetch me the prongs. And so on, and so on, for 100 more issues. May God have mercy on our souls.

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